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# Athens Journal of Education

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\*\*\*\*\*

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The current issue is the fourth of the tenth volume of the *Athens Journal of Education (AJE)*, published by the [Education Unit](#) of ATINER.

Gregory T. Papanikos  
President  
ATINER



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## **Using Vignettes as a Research Method to Investigate Placement and Provision for Children with Special Educational Needs in Different Countries**

*By Kieron Sheehy<sup>\*</sup>, Jonathan Rix<sup>±</sup>, Felicity Fletcher-Campbell<sup>°</sup>,  
Martin Crisp<sup>•</sup> & Amanda Harper<sup>♦</sup>*

This paper examines the use of vignettes as a research method in a comparative exploration of the provision for children with special educational needs across eleven countries. The investigation selected in-country researchers, who responded to questions with respect to children described in 14 vignettes. The questions related to school placement options; assessment processes; support arrangements; service provision; curriculum responses and those involved in placement decisions. The vignette findings were able to highlight differences in placement decisions between the countries; the general lack of pupil voice in decision making and the ubiquitous influence of medical categories within educational settings. The utility of using vignettes in this type of research is discussed in relation to reflecting the complex reality of educational practice in different countries.

**Keywords:** vignette study, special educational needs, international comparisons school placement, pupil voice

### **Introduction**

In selecting a research method, researchers often need to make a decision with respect to the depth and richness of qualitative analysis and the generalisability and policy reach of quantitative approaches (Khaled, 2021). One approach which may have merits with both and mixed forms of data collection is the use of research vignettes (McInroy & Beer, 2021; Murphy, Hughes, Read, & Ashby, 2021). Vignettes are short descriptions of situations or persons which elicit judgments about the depicted scenarios (Atzmüller & Steiner, 2010). These, typically hypothetical, scenarios (Schoenberg & Ravdal, 2000) have been used for a variety of purposes within educational research. They can be part of quantitative experiments, which systematically vary specific characteristics for factorial analysis (Atzmüller & Steiner, 2010) and qualitative studies (McInroy & Beer, 2021; Murphy, Hughes, Read, & Ashby, 2021). They are able to be used with a range of follow-up responses - for example, semi structured questions, closed responses or Likert scales.

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<sup>\*</sup>Professor, The Faculty of Wellbeing Education and Language Studies, The Open University, UK.

<sup>±</sup>Professor, The Faculty of Wellbeing Education and Language Studies, The Open University, UK.

<sup>°</sup>Senior Lecturer, The Faculty of Wellbeing Education and Language Studies, The Open University, UK.

<sup>•</sup>Associate Lecturer, The Faculty of Wellbeing Education and Language Studies, The Open University, UK.

<sup>♦</sup>Information Associate, NFER, Centre for Research Planning and Knowledge Management, UK.

There is a need for research which reflects upon the affordances and utility of vignettes in this way as there are few detailed accounts about the use of vignettes, particularly within social qualitative research or as a complementary data collection approach (Barter & Renold, 2000; Ling & Pang, 2021). The research that exists suggests that in some circumstances, vignettes are able to elicit and capture a richer picture of responses than other methods (Schoenberg & Ravdal, 2000) and gives the researcher particular benefits:

- (1) flexibility that allows the researcher to design an instrument uniquely responsive to specific topical foci;
- (2) enjoyment and creativity for the informant; and
- (3) depersonalization that encourages an informant to think beyond his or her own circumstances, an important feature for sensitive topics or for illuminating future use patterns of services.

(Schoenberg & Ravdal, 2000, p. 63)

When vignettes present case studies (Tanaka, Inadomi, Kikuchi, & Ohta, 2005), it is possible to elicit judgments about likely or preferred outcomes for the depicted individual or situation - for example, to explore teachers' attitudes to educational issues (Gall, Gall, & Borg, 2011). Not surprisingly therefore, this approach has begun to be used to explore attitudes and decision-making in comparative cross-cultural research in health (Jiwa et al., 2008; Mikton & Grounds, 2007) and, to a lesser extent, educational contexts (Gupta, Kristensen, & Pozzoli, 2010). Vignettes have been argued to be a simple and economical way of exploring understanding of treatment decisions in health services (Veloski, Tai, Evans, & Nash, 2005). Although vignette use within qualitative educational research is less well established (Skilling & Stylianides, 2020) it would seem to have merit as a tool in international comparative research.

In terms of eliciting responses concerning different groups of children with special educational needs, vignettes approaches have been used to compare responses to variations across a range of characters and scenarios e.g., age, gender or disability (Finch, 1987) and to elicit cultural norms through different groups or individuals evaluation and responses towards the same vignette situation (Barter & Renold, 1999). They have the potential to elicit subtleties and variations in practice of which only an 'insider' has awareness (Sumrall & West, 1998) and, within social research, provide a less threatening way to explore sensitive issues (Barter & Renold, 2000). These affordances appear to be particularly helpful for investigating decisions regarding placement and support, where there might be a disparity between the official policy documents and current 'on the ground' practices.

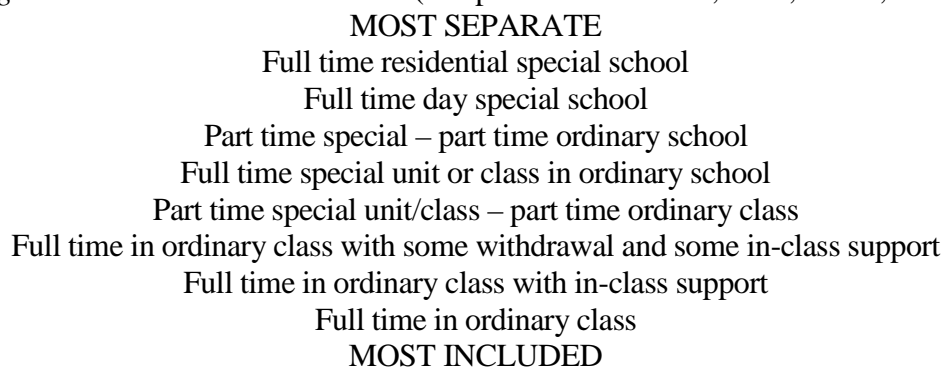
### **Using Vignettes to Understand Special Educational Needs Issues**

The purpose of this research is to examine the relative merits of using vignettes as a research tools through a retrospective analysis of provision for children with special educational needs (Rix et al., 2013). This large-scale research project was funded by the National Council for special education, Ireland. It

needed a research tool that could be used in combination with a policy review to go on the data regarding the education decisions for children with a range of special educational needs in countries with very different provisions.

One way which educational systems have responded to special educational needs has been conceptualized as a continuum. This continuum can take many forms - for example, providing a continuum of services (DeLorenzo, 2008) or provision (Martin, 2009), or varying the intensity of intervention (Rix et al., 2013). However, a common conceptualization of a continuum constructs a range of differentiated physical locations and services either as a representation of existing practice or as an aspiration for future development (Rix et al, 2013). Typically this linear continuum spans placement in full-time residential special provision to full time in regular classes (Norwich, 2008). Models have also been developed which try to make the boundaries between the special and mainstream elements in such a continuum more permeable - for example, those based on a least restrictive environment approach (Fuchs, Fuchs, & Stecker, 2010) This continuum constructs 'poles' where children are most included and most separate, as illustrated in Figure 1.

*Figure 1. A Continuum of Services (Adapted from Norwich, 2008, in Rix, 2015)*



It is often this type of continuum of services that is referred to within official policy documents and is seen as shaping and reflecting children's options for, and experiences of, their schooling. Whilst policy documents may indicate the provision that exists or is aspired to, the practice 'on the ground' may be more variable. This may occur partly because moves towards developing new and potentially more inclusive or flexible educational approaches occur within the 'previous' and enduring range of services and locations (Rix, 2015).

Therefore, in order to gain insights into how the continuum of provision is enacted (i.e., how children are located within it), there was a need to obtain information that was additional to the representations within official policy documents. It was for this purpose that a vignette-based approach was used to explore provision in eleven countries.

## **Selection of the Countries**

The vignette study reported here was part of a larger research study funded by the National Council for Special Education, Ireland. It followed the first phase of the study in which a descriptive map was created of special educational needs policies of 55 administrations within 50 countries, derived from an online literature and policy review (see Rix et al., 2013). From within this map, 10 countries were selected. The country selection reflected geographical spread, a range of systems and the likelihood that they would offer an insight into notions of a continuum and an aspect of, or issue within, the Irish Education system. The 10 countries selected were Australia; Cambodia; Canada (Nova Scotia); Cyprus; Italy; Japan; Kenya; Lithuania; Norway and Scotland. Ireland was added to this group as a direct point of comparison.

In-country researchers were identified by their academic experience or having published educational reports upon the special education systems of their country. Potential participants were contacted, following the ethical procedures of the authors' university, via email informing them of the research and requesting their participation.

To put the vignette responses in context a brief policy overview, derived from the policy review, is now given regarding school placement and the categorization of pupils in the countries of each participant researcher.

## **Historical legislation Context Regarding School Placement**

Across the 11 countries there appeared to be different policy constructions of special educational needs and systems designed to need these needs. There were systems that appeared explicitly inclusive and those that were two track (i.e., special and mainstream stream systems). Three countries had explicit policies on the rights of all children to attend a mainstream school: Canada (Nova Scotia), Italy and Norway (i.e., in contrast to special schools designated entirely for children with special educational needs (Warnes, Done, & Knowler, 2022)). In Canada each province had jurisdiction over education - rather than it being the responsibility of the Federal government - and Nova Scotia was one of the first provinces to have the aim of 'full inclusion' in educational legislation covering young people from the age of 5 to 21. A similar right existed in Italy e.g., 2009 Document no.4 – (August) reinforced the concept of 'full inclusion' (Eurydice, 2010b). The policies of the Italian system had moved away from special classes or withdrawal tuition, albeit with the possible precondition to access dedicated additional resources following 'Certification' (a clinical and functional diagnosis). In Norway, whilst a similar right to receive adapted education in a mainstream class existed (Education Act, 17 July 1998, chapter 3), the previous right to special education continued for children who were deemed unable to benefit from ordinary education (Education Act, 17 July 1998, chapter 5) (UNESCO International Bureau of Education, 2012).

The Irish system utilized a special schools and special classes approach (Rose, Shevlin, Winter, & O'Raw, 2010) and explicitly 'two-track' systems were

promoted through legislation in several other countries. Municipalities in the Republic of Lithuania are charged with the education of special children within the general education system and the government provide additional support for schools for children with special educational needs (Eurydice, 2010c). The country's Law on Education (17<sup>th</sup> of March, 2011) broadened the definition of SEN to include socially disadvantaged and gifted children. In Japan also an explicit 'two track system' had been created (Special Education Law of Japan, amended 2007), with a recent change being that special schools needed no longer to be 'impairment-specific' but could enrol pupils with different types of impairment (National Institute of Special Education, n.d.). In Scotland there existed educational legislation for children with 'additional support needs', combined with equality legislation for disabled children (Education (Additional Support for Learning) (Scotland) Act 2004; 2009, Equality Act 2010). Whilst there is an overlap between the two categories, they are not synonymous. Additional support needs encompasses children who experience greater difficulty in learning than their school peers, whereas disabled children are seen as those with substantial and enduring impairments affecting their daily lives (Office For Standards In Education, 2009). A strong disability focus also existed in Cambodia (e.g., Education Law 2007, Article 38; 39) with inclusive education being situated in policy terms within the Protection and the Promotion of the Rights of Persons with Disabilities (2009). It aimed to support disabled pupils through promoting disability awareness, creating accessible facilities and special classes (Kingdom of Cambodia - Ministry of Education, 2008). Similarly the Commonwealth Disability Discrimination Act 1992 (DDA) underpinned the Australian framework. This was operationalised in the education system through the Disability Standards for Education (2005), which were under review in 2011 (Department of Education and Early Childhood, 2021).

The legal framework in Cyprus (The Education and Training of Children with Special Needs Law of 1999) introduced the notions of the "least restrictive environment", and "integration in mainstream settings" alongside the development of a special education sector. The latter was situated in both education and 'disability' policy and legislation (Eurydice, 2010a). This 'overlap' was also found elsewhere: for example, in Kenya, where there was a Persons with Disability Act (2003) and a Special Needs Education Policy in 2005 (Ministry of Education, 2009). Both policies were reflected within the country's Children's Act and the new Kenya Constitution (Parliament of Kenya, 2010).

Across the 11 countries there was a mixture of single and two-track systems, both of which could be influenced by Disability legislation and whose remit might cover children's social and educational issues.

### **Categorisation of Pupils**

The policies of the 11 countries constructed different categories in their identification of special educational needs and, as Table 1 illustrates, the number of categories varied significantly between the countries.

Table 1. Number of Categories of Special Educational Needs in 11 countries

Country	number of categories
Kenya	22
Scotland*	15
Italy	14
Ireland	14
Japan	11
Lithuania	10
Cambodia	9
Australia	7
Nova Scotia**	7
Cyprus	4
Norway***	0

\*The Scottish concept of additional needs is broad ranging and focuses on support for any child to allow them to benefit fully from their education. The 15 categories here reflect the exemplars given of such need (Education Scotland, 2012).

\*\*The Canadian (Nova Scotia) education system was intended to be non-categorical. Those given here were reported as exceptionalities used for administrative and funding purposes only.

\*\*\*In Norway there was no official categorization. However, research suggests that in practice medical diagnoses have a role in defining the need for special teaching. Furthermore local evaluations of children by the Pedagogical Psychological Service made explicit use of 'medicalised' categories (Rix et al., 2013).

There were some commonalities across the countries - for example, seven countries used 'hearing impairment' as a named category and the others had a sensory impairment category. But in general, the categories did not map neatly across to one another. It is within this diverse framework of policies and categories that the vignette research took place.

## Methodology

### Development and Completion of the Vignettes

Barter and Renold (1999) distilled the elements of vignette research design. Vignettes need to appear plausible and authentic to participants, possibly derived from actual experiences. There should be sufficient contextual detail for respondents to understand the situation and whilst a variety of formats is possible, written narratives are the most established approach. Consequently, this study's vignettes were short written accounts that described the situation of a particular child and their needs, with only two vignettes explicitly indicating a diagnostic category (cerebral palsy and Down syndrome). Each situation was built from real life examples known to the researchers. The range and type of impairments and situations contained within the vignettes were refined through discussion with the NCSE and their advisory team. Seven vignettes were constructed, which could be mapped onto a diagnostic category familiar in the Irish context: autistic spectrum disorder (Sheehy et al., 2013), cerebral palsy, dyslexia, learning difficulties, profound and multiple learning difficulties, social, emotional and behavioural difficulties

and hearing impairment. The vignettes used children's names identified as commonly occurring in the country of enquiry and a balance was sought between genders.

The structure of each vignette was a description of a child and their situation followed by a set of questions. There was also a final question which altered a significant aspect of each vignette to explore how this change might influence the educational experience of the child. The use of a final question in this way allowed the range of special educational needs considered to be 'doubled' to 14. To illustrate this, an example of a vignette relating hearing impairment (Genie) is presented.

### **Genie**

Genie is a five year old girl. She lives with her parents and her older brother in a comfortable house in a small regional town. Her father is a local civil servant and her mother runs a small catering business from their home. When Genie was a baby her mother was concerned that she was not hearing everything that was going on around her. A health check when she was 11 months old confirmed that Genie was profoundly deaf. Her family can all hear and speak. They have learned to use sign language to talk to Genie and to each other when Genie is in the same room. Her parents are eager for Genie to use signing in her schooling. Genie wears two hearing aids. She does not show particular interest in other people's conversations. She is not aware if someone is talking to her when she is not looking at them, but will turn her head to sudden loud sounds. She speaks using individual words and simple phrases, which are very hard to understand for those outside her family. At times, however, she surprises her family at the things she does not seem to understand. She plays with other children in the street and has a best friend who is the same age as her and has learned some signs. However, compared to her brother she is relatively isolated socially. She loves animals and is very good with them. The family have a small pet dog which Genie feeds and takes for walks. She is good at drawing and painting. She will spend long periods drawing pictures of animals and her family. She also seems to have a strong interest in numbers and has been able to do the adding and subtracting homework that her brother has brought home from school. Her parents believe that their daughter would benefit from attending a mainstream school

The questions accompanying each description followed the format indicated below.

## PLEASE ANSWER THE FOLLOWING QUESTIONS.

If there are contradictions in the system or variables which will powerfully affect the outcome, please suggest what these might be. If a question cannot be answered it would be helpful if you could suggest why.

1. Where would Genie be educated?
2. How would her needs be assessed?
3. What support would he be offered?
4. Which services (if any) would work with education to support Genie?
5. Where would the funding for Genie's education and support come from?
6. What curriculum would she follow? (e.g., the same as his age-equivalent peers or a curriculum specially designed for his personal learning or a curriculum designed for a particular group of students unlike their age-equivalent peers)
7. Who would be involved in the decision about her education placement?
8. Who would be involved in the decision about her support needs?

The additional final question related to a particular aspect of each situation and the influence this might have on the child's educational experience. Two examples related to the above vignettes are given in Table 2.

Table 2. An Example of a Vignette Final Question

Vignette	Final question	Aim
Genie	How would the placement and support change if Genie's parents believed she should attend a school for the deaf?	To explore the influence of parental choice on children's provision and to raise issues of concern to the Deaf Community.

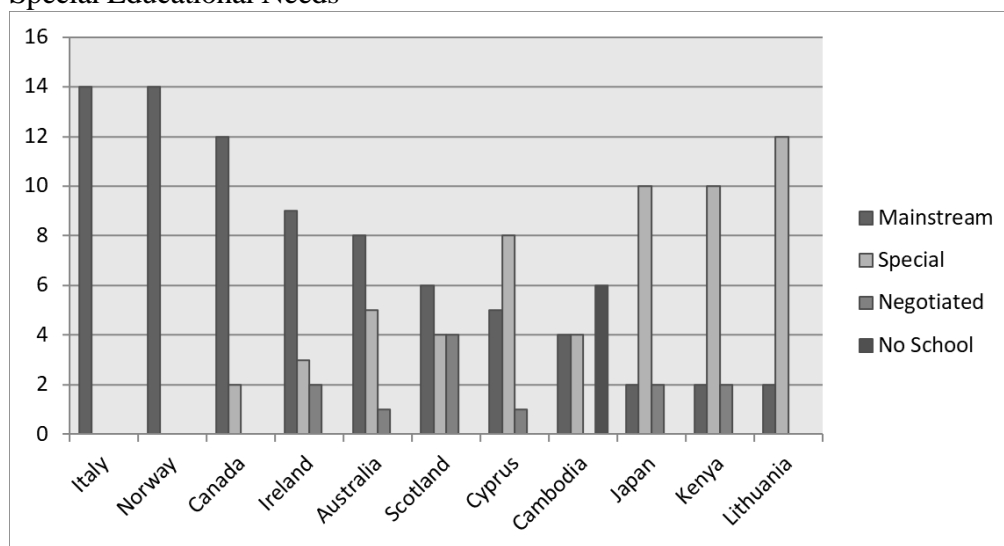
## Results

Responses to 154 situations were collected (7 x 2 vignettes x 11 countries). Rather than précising each of these, an analysis is presented of school placement decisions and the significant themes that emerged across them all.

### School Placement

In general terms the vignettes revealed, not unexpectedly, differences in the likelihood of children being placed in mainstream or special schools in different countries. Given the additional final questions there were 14 possible placements and these are summarized in.

**Figure 2. Vignette Responses Regarding the School Placement of Children with Special Educational Needs**



This overview of the responses maps broadly to the options described within the policy documents, with children in Italy, Norway and Canada (Nova Scotia) being most likely to attend their local mainstream schools. The ‘two track’ systems can be clearly seen in Figure 2, with the relative number of placements and degree of negotiation of placements in either mainstream or special schools varying. These negotiations might be influenced by parental wishes or the geographical location of the schools and services.

The use of special school placements for a wide range of pupils was noted in Japan and Lithuania, whereas Australia (Victoria), in line with policy, supported special schools and special classes for fewer groups of learners. The Lithuanian responses reflected the 2012 state situation and this was reported to be likely to change, with a reduction in the special school placements in subsequent years. Japan’s ‘two track’ system included options for both resource rooms and special classes within mainstream schools. There appeared to be more flexibility within the system than might appear from a policy viewpoint alone. In Cyprus also, special units existed within mainstream schools. These were classified as ‘special’ in the responses, although they could involve some scheduled contact periods with their mainstream peers.

Whilst Cambodia reported inclusive policies the reality, as reflected in the vignette responses, appeared to be that a child with SEN might not necessarily be in school. A significant factor in this was the allocation of limited resources (e.g., NGO support) to support school placement. The Canadian responses suggested that nearly all children would be in mainstream most of the time. The two exceptions here concerned behavioral and mental health issues, where a specialist health placement was felt to be a possible outcome.

## Children's Voice in Educational Decision Making

A significant issue concerned the parties involved in placement decisions. A wide range of services and professionals from multidisciplinary teams could potentially contribute to discussions with parents and education authorities. Yet only in one researcher's responses to two vignettes (Canada: cerebral palsy and deafness) were the children themselves indicated as being consulted regarding their own placement and support needs.

Apart from this, children were not indicated as being consulted in discussions of school choice, school transfer or support decisions. The implication was that the children's views would be represented by parents and professionals. In one case (Lithuania: SEBD) this representation could be strengthened by the 'children's ombudsman' who might support the young person's interests and rights, although at a distance. However, it was manifestly evident that children were not positioned centrally enough in the formal decision-making processes to be mentioned more frequently in the vignette responses.

## The Defining Features of a Special Placement

The vignette responses contained frequent references to a special curriculum, which could be an adapted mainstream curriculum or an individualized one.

The same [*curriculum*] as his age-equivalent peers with adaptations. This might involve an alternative curriculum with a strong personal development and vocational element.

(Scotland)

He would follow an age appropriate curriculum, social skills training and daily living skills training.

(Japan)

Curricula for children with hearing impairment... Individual curricula.

(Lithuania)

She would have an IEP [*individual education programme*] in some areas (academic areas) but she would probably follow the normal curriculum in practical areas

(Norway)

However, there was not a strong indication that a special pedagogy, differing from mainstream pedagogy, was required for children with special educational needs. The exception to this was in the Japanese system. The responses here indicated a specific pedagogy, based on applied behavioural analysis for both children with autism and children with learning difficulties who self-harm. Elsewhere, and overall, whilst special schools and units might utilize special pedagogic approaches, these were not explicit in the vignette responses. Two more salient factors influencing special school placement decisions appeared to be access to health service professionals - such as speech therapists and physiotherapists - and the presence of a low teacher pupil: ratio.

Teaching ratio 1:6; teacher aide; speech therapist; occupational therapist  
(Australia)

High proportion of staff members per pupil. Health and social work input may be available  
(Scotland)

### **The Influence of Categories**

Although each country's educational system might not use the special needs categories implied in the vignettes to direct educational placement, these categories were transparent to the respondents. This might suggest a shared medical, or medicalised, discourse existing parallel to the discourse in educational policies. A possible influence on this was the ubiquitous link noted between diagnostic categories and the provision of educational resources at some level. For example, in Scotland and Ireland the vignette responses highlighted the significant influence of a formal 'out of school assessment', which could result in additional support in a classroom or influence the curriculum received by the child following a diagnosis. In Norway and Italy, whilst children could enter their local schools without a formal diagnosis of disability or need, such a diagnosis might also access additional resources within the school.

This diagnosis could be part of a route into a special school system or a supported mainstream placement. There were examples of 'in school' educational assessments linked to categorisation. For example, in Italy, whilst the system does not produce additional support for children diagnosed as 'dyslexic', specific screening assessments were indicated as being often used to plan educational responses within schools. In Japan and Australia educational literacy assessments could trigger the start of specific remedial reading approaches for particular children within the school. However, overall, it was more common for non-educational, non-school based assessments to be linked to the provision of educational support in some fashion.

A diverse range of sources of funding for children with special educational needs was reported across the vignettes. For some countries this could be additional to a general funding allocation to disadvantaged areas (e.g., Ireland, Scotland and Italy). This additional funding was linked to individual pupils and associated with diagnosis by accredited medical or psychological professionals (Ireland, Scotland, Japan, Italy and Australia). By contrast, in Kenya and Cambodia, funding for pupils with special educational needs was entirely on an individual basis, from Non-Governmental Organizations and in Cyprus a significant funding source was noted to be 'Radiomathonios', a fund-raising media event specifically for children with special educational needs. The Norwegian vignettes responses indicated that only state funded generic financial support was given i.e. there was no funding at the level of individual pupils within a local municipality. This fixed resource was drawn on to allocate in-class support to meet children's needs following assessment.

## Discussion

The method of using vignettes in this way has limitations. Data collected reflect the views and experiences of individuals, albeit those selected for their expert knowledge of educational practices in their countries. They cannot be taken to imply uniform national practices or to represent the educational experience of all children. For example, these results do not reflect the less common options in Norway and Italy reported by participants in which special schools could be called upon in situations not reflected in the vignettes. The results also mask a reported situation in which children might be placed within a mainstream setting but taught outside of the mainstream class by a support teacher, potentially full-time. Similarly, our respondent indicated that there is a strong likelihood that children with S.E.N may not attend school in Kenya, yet this is not reflected in the 'local' picture that informed their responses. Whilst several studies have concluded that vignettes can provide a good indication of real-world actions (Veloski, Tai, Evans, & Nash, 2005), such studies typically concern the response and actions of the respondents themselves. In our research, the respondents were replying with regard to the actions of the system within which they worked. Whether this 'distancing' reduces this predicative validity is a topic for further research. Follow-up visits to four of the sampled countries (Italy, Norway, Japan and Ireland) suggested that the vignettes response garnered here did reflect actual placement practices and outcomes that existed, at least in the specific locations visited, within a country (Rix et al., 2013).

Whilst vignettes cannot provide all-encompassing accounts this research suggests that the vignette method is able to offer insights into existing practices that occur within a country and, through thematic analysis, highlight significant issues. The responses appeared to reflect the 'messy' and complex reality of educational practices (Cameron, 2006). The differences in school placement and categories revealed by the vignettes would support the assertion that special and inclusive education is conceived and enacted differently in different cultures (Stangvik, 2010) and, further, that it is nuanced by local factors such as the location of existing resources and the mobility of children and teachers between local schools.

The vignettes reflected categories of special educational need that existed in Ireland, however these appeared to be transparent to all the respondents. This might suggest that the medical discourse is ubiquitous and able to influence educational thinking, albeit to different extents, in the sampled countries. Whilst there is evidence that even 'standardized' categories of disability are interpreted differently in different countries (Florian et al., 2006), the vignette response suggest that there is some commonality of implicit labelling of special educational needs and there is support for this idea from other research (Florian et al., 2006). The caveat to this suggestion is that the respondents were likely to have a broad knowledge of the field of special educational needs. Future research might therefore examine the extent to which such categories have meaning for practitioners and parents, and indeed young people themselves.

This is an important issue, as previous comparative studies have found that

cultural interpretations of disability strongly affect opportunities for inclusion. When they are socially explained it is viewed as a civil right; when they are explained medically, integration is made dependent upon productivity or learning to conform to social roles.

(Stangvik, 2010, pp. 353-354)

The flexibility and accessibility of a vignette approach, found in this research, suggests this method would be able to explore whether medicalised categories of educational need and disability are influencing the 'cultural interpretations' within educational systems.

The lack of pupil voice or consultation emerged clearly. Pupils do not feature noticeably in the decision-making processes as reported by the in-country respondents. This finding stands in contrast to international policy level information. For example, the concept of pupil voice is often seen as arising from the United Nations Convention on the Rights of the Child (Lundy, 2007) .

For this purpose, the child shall in particular be provided the opportunity to be heard in any judicial and administrative proceedings affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child  
Article 12 Convention on the Rights of the Child (United Nations, 2005)

Based on the presumed influence of this Convention, one might expect several of the vignettes to have yielded instances of pupil consultation. If educational practices are intended to benefit pupils then it is essential to hear their own views about what is beneficial to them (McIntyre, Pedder, & Rudduck, 2005). The barriers to supporting this practice in general have been discussed (Lundy, 2007) and research is beginning to suggest ways forward for pupils with complex disabilities (Wright, Sheehy, Parsons, & Abbott, 2011) and learning difficulties (Saggers, Hwang, & Mercer, 2011), whose voice may be less easily accessed than their peers. However, the vignette responses suggested that the voice of children with special educational needs appear to carry little weight in major decisions about their educational lives. This appears to be irrespective of the structure of the educational system or countries in our sample. The consultation of young people themselves was not yet a salient enough feature of practice to be mentioned routinely in the responses. The identification of this area illustrates a strength of the vignette approach and highlights an issue that could be followed up, using vignettes, to explore if progress has subsequently been made.

## Conclusion

The vignette method demonstrated the flexibility to be used in a comparative study and the affordances to elicit a range of responses illuminating aspects of educational practice in different countries. Participants' responses to vignettes depicting children with special educational needs revealed a wide variation in school placements. In some situations, a diagnostic category allocated children to a type of school or determined the provision of additional educational resources to meet their needs. Even where this allocation did not occur such diagnostic categories appeared to inform educational provision to some extent. The voice of children with special educational needs was not yet salient enough in educational practice for it to feature significantly in the responses of our participants. Despite the limitations inherent in sampling practice through the responses of individual respondents, it would appear likely that this group of children remain as 'invisible' in real-world decision-making practices as they were in the responses to the fictionalized vignettes. The use of vignettes offers an insightful research tool through which researchers can examine if progress has been made in this field.

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## **Process Indicators for Grading Group Essays: Learning Analytics of Assessment Data and Online Behaviour**

*By Mei-Shiu Chiu\* & Ya Ping (Amy) Hsiao<sup>±</sup>*

The aim of this study was to identify process-related indicators for grading group essays. The research participants were students registered in a teacher-training course using an instructional design with face-to-face and digital blended learning. The course required the students in small collaborative groups to design, implement, and evaluate a teaching program using creative pedagogical designs, which were documented using group essays. Four indicators relating to group essays along the course process were collected: (A) group essay grades assessed by different agents, (B) students' other course grades or behaviours (i.e., multiple assessments) as well as (C) comment behaviours and (D) version history behaviours through an online co-editing system (i.e., Google Docs). Statistical analysis results indicated that the instructor's group essay grades were related to the group essay grades assessed by out-group peers (i.e. peers from other groups), online group comment frequencies, and online group comment interaction density.

*Keywords:* assessment methods and tools, collaborative learning, essay grading, learning analytics, higher education

### **Introduction**

Learning, communication, and collaboration skills are three essential skills in the 21st century (Messersmith, 2015). Students can acquire and exercise these skills simultaneously through appropriate pedagogies focusing on social interaction (e.g., group work). Despite the benefits of group work for students to practice these skills, assessing group work remains challenging for instructors in higher education. One of these challenges is assigning fair grades to individual group members (King & Behnke, 2005), especially when there are free riders in the group, which is a well-known drawback of using a collective grade for group work (Maiden & Perry, 2011). Even though it is reasonable to assess the group process and take it into account for grading, monitoring and assessing the group process is technically difficult. It is like grading a black box (Davies, 2009).

Grading group essays is especially challenging for instructors when group work takes place outside the classroom, lasts for a long time, and consists of several stages. A recent development in real-time group editing techniques (e.g., Google Docs) can help document the group process (Woodrich & Fan, 2017; Zhou, Simpson, & Domizi, 2012) and increase essay performance and collaborative learning (Suwantarathip & Wichadee, 2014).

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\*Professor, Department of Education, National Chengchi University, Taiwan.

<sup>±</sup>Assessment Specialist, Tilburg University, The Netherlands.

Ideally, classroom assessment on student products generated from real educational settings should be considered as part of a course design based on research-based pedagogical and learning theories; that is, classroom assessment is of, for and as learning (Black & Wiliam, 2018). This paper focuses on group essays, as one of the major learning outcomes (assessments) of a course studied by this study. The course was designed on the basis of sociocultural learning and creativity theories. With the design, students' group-essay grades may relate to other student assessments and behavioural outcomes, which suggest effective indicators for grading group essays. The following literature review addresses the course's pedagogical design and related student assessment/behavioural outcomes in more detail.

### **Theories for Group Essays as Assessment to Address Course Objectives and Pedagogy**

Classroom assessment needs to be grounded in learning theories to support and optimize student learning outcomes. The teacher-training course described in this study was developed on the basis of sociocultural learning theory (SLT) and 4P (Person, Product, Place, and Process) creativity theory (4PCT), which was transformed into the course' major objective: "Students are able to develop a creative pedagogical design by collaborating with others". Group essays are one of the most appropriate and most valid assessment methods for addressing this course's objective and pedagogy.

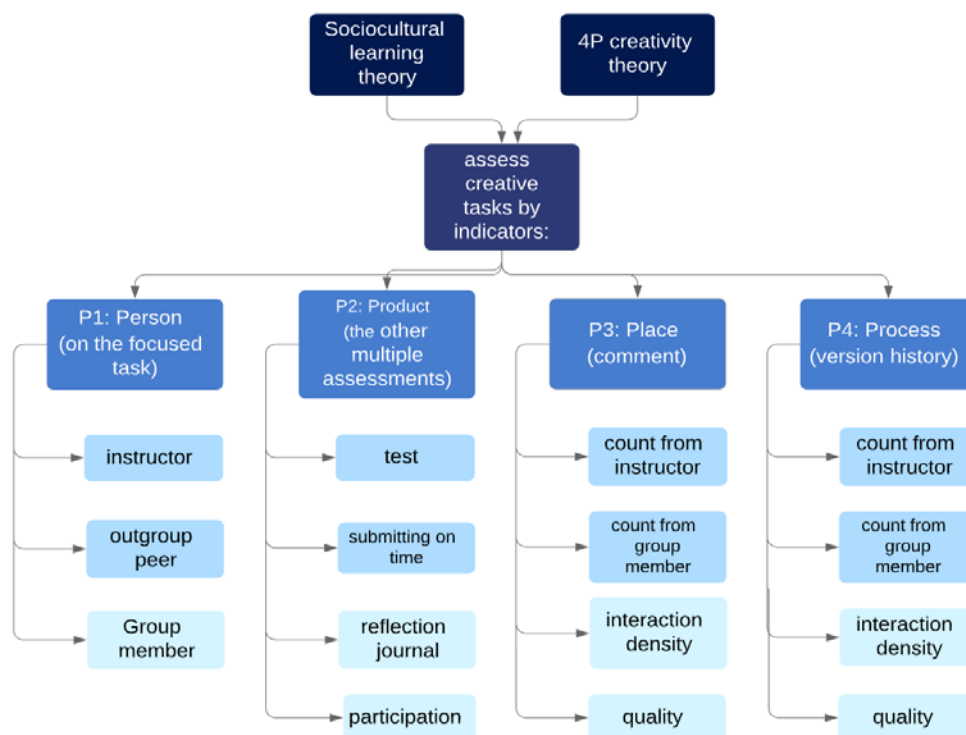
SLT emphasizes learners' participation in a learning community to develop higher-order cognitive, emotional, and social abilities (Zeidler, 2016). SLT is, therefore, suitable for instructional designs aiming to promote collaborative learning (e.g., writing group essays) that emphasizes sharing knowledge, norms, and practices in a learning community. SLT can also serve as the theoretical basis for a teaching, assessment and research design in a complex off- and on-line blended, collaborative learning environment (Shepard, Penuel, & Pellegrino, 2018).

Essay writing is a creative task, which calls for a course design that considers the four elements of creativity, named 4P creativity theory (4PCT) in this study (Hasirci & Demirkan, 2003). Group essay grades are a summative assessment result of students' collective creations. As suggested by SLT, grading group essays should not only be based on the summative assessment results of the group product, but also consider the continuous assessment results of the group process (Zeidler, 2016; Shepard, Penuel, & Pellegrino, 2018). An SLT-based continuous assessment of a collective creative task (e.g., the group essay in this study) needs to include assessment indicators of active interactions between people, product, place (or environment), and process (i.e., the 4PCT).

Using the SLT and the 4PCT as theoretical framework, potential indicators for group essays need to emphasize interactions in four different aspects: the actions taken by various agents (person), multiple assessments that reflect students' diverse abilities (product), and interactions between in-group peers as they are working on their task, as revealed by their dialogues (e.g., comments) in the

environment (place) and their essay version histories (process). Figure 1 presents the Framework for Indicators of Creative group tasks (the FIC) using SLT and 4PCT as the theoretical basis for the pedagogical, assessment, and research design of this study. The FIC suggests four indicator categories as follows.

Figure 1. The Framework for Indicators of Creative Group Tasks (FIC)



### “Person” Indicators: Group Essay Grades Assessed by Different Agents

Essay tasks can be assessed by different agents in the learning environment. The most frequent agents are instructors, out-group peers, and in-group peers.

**Instructors.** Instructor grading is often the main or only criterion of students’ grades or the summative assessment. Despite their lack of reliability, school teachers’ grades remain the basis for educational decision-making about students’ learning (Guskey & Link, 2019).

**Out-Group Peers.** Out-group peers are classmates who do not work on the same group essays. Out-group peers are the second type of agent. They have been extensively researched and are recommended for use in formative assessment activities. A peer feedback or review activity with learners’ reflections based on a social constructivist design can benefit students’ higher-order learning outcomes, improve task outcome quality, and reduce academic staff’s workload (Taylor, Ryan, & Pierce, 2015). There is, however, some doubt about out-group peer review quality, due to the often large difference between instructors’ and out-group peers’ grades (ArchMiller, Fieberg, Walker, & Holm, 2017).

**In-Group Peers.** For group work, there is a need to distinguish the grading behaviour between in-group peers and out-group peers. It is because that ‘in-group favoritism’ and ‘out-group hostility’ are two prevalent phenomena that entail bias or discrimination in human society (Perry et al., 2018, p. 89).

### **“Product” Indicators: Multiple Assessment Grades related to Group Essay Grades**

Multiple different assessment methods should be used to ensure that students with different abilities are assessed appropriately. The assessment measures should be aligned with the course objectives clearly and precisely.

**Traditional Cognitive Test Results.** Traditional tests examining student acquired knowledge (e.g., by multiple choice items) are the most frequently used assessment measure to address a course’ objectives. However, traditional tests are mostly appropriate for assessing lower cognitive skills such as knowledge, comprehension and application skills, although it is an inevitable or necessary measure in national and international large-scale assessment programs (Shepard, Penuel, & Pellegrino, 2018). To ensure validity of creative group work, other measures are more appropriate than traditional tests.

**Self-Regulation Behaviours.** It is mostly agreed that students’ self-regulation relates to positive learning outcomes (Seker, 2016). Formative assessment that focuses on self-assessment is a common technique to measure student self-regulation (Meusen-Beekman, Joosten-ten Brinke, & Boshuizen, 2016). For example, students self-assess their performance or behaviour and then reflect on their learning based on the course or personalized learning objectives (Hsu & Ching, 2013).

Other measures used to assess students’ self-regulation are, for example, disciplined student behaviour. Instructors can assess students’ submission or management behaviour by asking students to submit their work on time. In higher education, student participation or engagement in the learning environment can also serve as a criterion for self-regulation (Haladyna, 1999). The three aforementioned behaviours (keeping reflection journals, on time submission, and active participation in the class) are signs of online and offline self-regulation behaviours for students higher in education (You, 2016; Thibodeaux, Deutsch, Kitsantas, & Winsler, 2017).

### **“Place” Indicators: Comments in the Online Group Essay Writing Process**

Peer review and comments as a form of learning presence are likely to facilitate the group work process (Shea et al., 2013). However, whether peer review and comments can serve as a process-related indicator for quality of group work products remains unknown in the literature so far. In the context of essay writing or in the academic world of paper writing, negative or one-direction comments may be destructive (Lu & Bol, 2007), whereas peer reviews with dialogues (working as in-group peers) can be effective for improving the quality of essays or papers. It is because student peers have the opportunity to exchange

perspectives and justify their thinking (Nicol, 2010), which help generate good outcomes (Southavilay, Yacef, & Callvo, 2010).

### **“Process” Indicators: Version History in the Online Group Essay Writing Process**

The ability to see the complete version history of an essay is a specific feature in Google Docs. Essay version histories indicate the process of essay writing, which can be fully documented given the present development of technology. Group essay versions documented in Google Docs can be used to study the student writing process and can serve as an important measure (continuous assessment) for grading group essays.

Past research, however, does not mention the effect of the life cycle or history of essay versions. Some likely behaviours of Google Document version history related to final essay grades include: quickly responding to peer feedback, completing the essay long before the due date, and changing text frequently (Southavilay, Yacef, & Callvo, 2010).

### **Research Question**

This study is based on a course designed using SLT and 4PCT, given that a group essay is a collective, creative task. The instructor’s group essay grades serve as the basis for detecting process-related indicators. Figure 1 presents the theoretical framework of the course, followed by the related person, product, place, and process indicators. The statistical methods to identify process-related indicators were comparisons between groups with different performances. Concretely speaking, this study aimed to answer the following RQ:

What are the person, product, place, and process (4Ps) indicators that distinguish between high- and low- performing groups, as assessed by the instructor’s group essay grade?

## **Method**

### **Participants**

The research participants were 18 undergraduate students registered in a teacher-training course on pedagogies at an academic university in Taiwan. Among the students, 14 students were female and four were male; 16 students were Taiwanese and two students were international students from South Asia; 16 students were third-year, and two students were fourth-year students; 14 students studied education and the other four students studied science, commerce, social sciences, and language, respectively. The students were divided into five groups of 3–4 members. The grouping method was negotiated between the course design and the students’ preference.

## **The Pedagogical and Assessment Design of the Course**

### **Course Objectives**

The course objectives (CO) aimed to develop students' competences of (A) knowing and understanding pedagogical theories, design methods, and implementation principles, (B) analysing and applying the pedagogies to related cases, and (C) creating, implementing, evaluating, and reflecting in small groups on the pedagogies used to teach any domain of knowledge or any educationally worthwhile topic. CO (C) invited a higher-order pedagogy to apply the knowledge and skills learned by using pedagogies to address CO (A) and CO (B).

### **Five Phases**

The course was organized into five phases as follows.

Phase 1 aimed at fulfilling CO (A), lasting around 3 weeks. Students learned basic knowledge of pedagogical designs. The teaching methods included the instructor giving lectures and demonstrating likely ways to use the knowledge. The students asked and answered questions.

Phase 2 aimed at fulfilling CO (B), lasting around 5 weeks. The students explained knowledge and/or demonstrated likely ways to use the knowledge. The instructor reported related pedagogical cases to demonstrate how to apply the knowledge.

Phase 3 aimed at fulfilling the creating part of CO (C), creating new pedagogies. Students working in groups reported on their initial creative pedagogical design and wrote the title, literature review, research questions, and method of the group essay as midterm presentations.

Phase 4 aimed at fulfilling the implementing, evaluating, and reflecting part of CO (C). Students implemented the pedagogical design they created in Phase 3 in class, collected peers' learning process or outcome data, analysed the data, and completed the remaining part of the group essay, focusing on the results and discussion sections.

Phase 5 fulfilled the three COs by letting students complete their group essays in three steps. In Step 1, students drafted their initial completed group essay. In Step 2, out-group peers, in-group peers, and the instructor graded the drafts and provided comments. In Step 3, students completed their final group essays based on the grades and comments obtained in Step 2.

### **Data Collection and Ethical Considerations**

The data were collected during regular didactic practices. The course mainly used face-to-face class teaching (14 weeks) but partially used various digital LMSs (e.g., Google Drive during the whole course process, including 4 weeks fully online and 14 weeks blended with the face-to-face teaching).

This study was a teaching evaluation study, with an aim to improve learning and teaching, using data naturally generated from regular teaching practices and

adult students (> 20 years of age), which met the ethical criterion of teaching research and therefore did not need to obtain approval from the ethical committee (Official Document 1040003540 issued by the Ministry of Science and Technology, Taiwan). In addition, the participants' identities and the course name were protected during the entire research process and are not reported in this paper.

## Indicators

Detailed scale ranges and descriptive statistics of the indicators are presented in Table 1. Each indicator is explained further as follows.

### “Person” Indicators: Different Agents' Grades

Group essay grades were assessed by the instructor, out-group peers, and in-group peers. Students rated each group essay on seven items using a 4-point Likert-type scale, ranging from 1 = *Strongly Disagree* to 4 = *Strongly Agree*. Mean scores were taken for the ratings from out-group peers (i.e., peer assessment) and in-group peers (i.e., group self-assessment), respectively. The seven items were

- (1) creative research topic,
- (2) educationally beneficial research topic,
- (3) clear motivation and literature to address the research topic,
- (4) concrete research hypotheses or questions that can be inferred from literature review,
- (5) clear description of research methods (on research participants, teaching designs, measures, and data analysis methods),
- (6) clear description of results for each research hypothesis or questions including proper tables and figures, and
- (7) in-depth discussion of the meaning of each result, including implications for educational practices.

“Reason and/or suggestions?” served as an open-ended question for each of the above seven Likert-type items and the whole group essay. This allowed students to provide comments and suggestions for further revision of the group essay.

### “Product” Indicators: Multiple Assessment Grades

Multiple assessment grades and student behaviour records were naturally generated from the course process. These indicators included

- (1) students' results of tests on the course content (i.e., pedagogical knowledge) from completing 10 multiple-choice items I (scores 0-10);
- (2) submitting on time: This reflected group essay grading management behaviours. The scores combined the degree to which the students completed the task of grading five groups' essays and how punctual the

- students were in completing this task (scores 0-10 = 5 group essays \* 2 points \* 1 being punctual (to 0 = no submission);
- (3) reflection journals: students' weekly journals kept for each week (0-18 weeks), and
  - (4) participation (0-42 hours).

#### "Place" Indicators: Comments in Online Processes

In-group peers and the instructors gave comments when the group essays were processed online. The Google Docs were downloaded as Word files, the comments on which were extracted to separate Excel files and subsequently coded and analysed (<https://www.thedoctools.com/word-macros-tips/word-macros/extract-comments-to-new-document/>). The indicators pertaining to comments included

- (1) the instructor's total comment count for each group essay;
- (2) in-group peers' total comment counts;
- (3) groups' comment interaction density, which was calculated as the average of the number of replies to each comment (including the comment itself). To give an example, if a comment received no replies, its reply count was 1; if a comment received 2 replies, then its count was 3; and
- (4) the mean (average) of student comment quality. All comments were coded as 1 = *not inviting further action* (e.g., "Marked as resolved"), 2 = *compliments or acknowledge* (e.g., "good job", "thank you", and "OK, I understand now."), or 3 = *substantial opinions for improving essay contents, responding to previous comments, or inviting further actions* (e.g., "Yes, I do have an assumption..."). The coding results were divided by the total comment count of each group. The second author of this paper learned the above coding rule and some examples, based on portions of the comment items that were coded without knowing the first author's coding. Inter-rater reliability was calculated using the formula "items with same code/total items". We obtained a 94% agreement.

#### "Process" Indicators: Version History in Online Processes

The instructor created an essay template for each group to work on Google Docs. The digital system automatically recorded when and which parts of the group essays were changed. The process generated the group essays' version histories, which were copied and pasted into Excel files and then analysed. The related indicators that emerged included:

- (1) counts of the group essay versions generated by the instructor;
- (2) counts of the group essay versions generated by the in-group peers;
- (3) group essay version interaction density (or weighted simultaneous writing frequencies), which were the numbers of in-group peers who

- worked at the same time divided by the group sizes. This indicator aimed to detect the density of students working simultaneously; and
- (4) student essay version quality, which was graded by the instructor for each student, using the criterion of substantial contribution provided by one student at least once by the midterm and once on the final essay (1 = *no contribution* to 3 = *substantial contribution*).

### **Data Analysis**

The RQ was answered using the Kruskal-Wallis one-way analysis of variance by ranks with the R FSA package. If the Kruskal-Wallis chi-squares were significant, Dunn's multiple comparison tests with p-values adjusted by the false discovery rate method were used by using the R dunn.test package (Dinno, 2017).

### **Results**

#### **Person Indicators**

The criterion was the instructor's grades on students' group essay performance, because the instructor was normally the 'major' person or agent in implementing a course and assigning grades for student learning outcomes. As indicated by Kruskal-Wallis test results, there were significant differences between the five groups in the instructor's group essay grades (Kruskal-Wallis chi-squared value ( $KW\chi^2$ ) = 17.000; degree of freedom (df) = 4,  $p = 0.002$ ; Table 1). Dunn's multiple comparison test results further indicated that Group A had a higher grade than Group D and Group E ( $A > D, E$ ).

Table 1. Indicator Descriptive Statistics and Group Difference Test results for all and Group Samples

Samples		All						Group A*	Group B	Group C	Group D	Group E			
Indicators	scale range	Min.	Max.	Mean	SD	median		median	median	median	median	median	KW $\chi^2$	p-value	DunnMC
1.Essay grades by the instructor (the criterion)	7 ~ 28 points	10.000	27.000	22.830	6.071	26.000		27.000	26.000	26.000	23.000	10.000	17.000	0.002	A>D,E
2.Essay grades by outgroup peers	7 ~ 28 points	18.067	23.400	21.673	1.826	22.571		23.400	22.710	22.570	21.140	18.070	17.000	0.002	A>D,E; B>E
3.Essay grades by in-group peers	7 ~ 28 points	18.000	25.250	22.222	2.719	22.667		22.670	24.000	25.250	18.000	21.000	17.000	0.002	C>D
4.Knowledge test grades	0 ~ 10 points	1.000	7.000	3.390	1.852	3.500		5.000	1.500	3.000	5.000	3.000	8.945	0.062	
5.Essay grading management	0 ~ 10 points	6.000	10.000	9.110	1.158	10.000		10.000	9.000	10.000	8.000	8.000	6.053	0.195	
6.Weekly journal	0 ~ 18 times	8.000	20.000	15.833	3.400	17.500		18.000	16.500	17.500	15.000	13.000	4.005	0.405	
7.Participation	0 ~ 42 hours	31.400	42.000	37.694	3.441	38.450		42.000	38.100	38.050	35.650	38.400	2.656	0.617	
8.Instructor comment count	0 ~ N times	14.000	27.000	18.556	5.159	15.000		15.000	20.000	14.000	27.000	15.000	17.000	0.002	D>C
9.Student comment count	0 ~ N times	0.000	101.000	19.278	37.722	2.000		101.000	8.000	2.000	1.000	0.000	17.000	0.002	A>D,E; B>E

10.comment interaction density	0 ~ N times	0.000	3.000	1.541	1.023	1.880		2.340	2.000	1.880	1.640	1.530	17.000	0.002	A>D,E; B>E
11.student comment quality	0 ~ 3 points	1.530	2.340	1.872	0.275	1.375		2.079	1.375	3.000	1.000	0.000	17.000	0.002	C>D,E
12.Instructor essay version count	0 ~ N times	4.000	8.000	5.444	1.464	5.000		5.000	8.000	4.000	5.000	5.000	17.000	0.002	B>C
13. Student essay version count	0 ~ N times	18.000	62.000	39.944	14.550	35.000		35.000	35.000	43.000	62.000	18.000	17.000	0.002	D>E
14.Essay version interaction density	0 ~ 1 points	0.316	0.389	0.341	0.025	0.337		0.389	0.337	0.326	0.316	0.353	17.000	0.002	A,E>C
15.Student essay version quality	0 ~ 3 points	2.000	3.000	2.944	0.236	3.000		3.000	3.000	3.000	3.000	3.000	3.500	0.478	

Note. \* The group names are ordered from high to low instructor's essay grades to facilitate readability.  $KWx^2$  = Kruskal-Wallis chi-squared with a degree of freedom = 4. DunnMC = Dunn multiple comparison tests.

The five groups were also different in their essay grades by out-group peers ( $KWx^2(df) = 17.000(4)$ ,  $p = 0.002$ ; Table 1). Out-group peers' grades not only repeated the pattern of the instructor's group essay grades (A>D, E) but also indicated a detailed difference (B>E). Note that we have ordered the group names in Table 1 from high to low group essay grades (i.e., A>B>C>D>E) to facilitate readability. The ordering mainly used the instructor's essay grades and partially used out-group peers' grades for the two groups whose instructor's grade was the same.

The test results on in-group peers' essay grades also revealed a significant group difference ( $KWx^2(df) = 17.000(4)$ ,  $p = 0.002$ ; Table 1). However, Dunn's multiple comparison test results showed the result as C>D.

### Product Indicators

There was no significant difference between the five groups in students' knowledge test grades ( $KWx^2(df) = 8.945(4)$ ,  $p = 0.062$ ), essay grading management behaviours (6.053(4), 0.195), weekly journal performances (4.005(4), 0.405), and participation rates (2.656(4), 0.617; Table 1). The results implied that different assessments tended to measure distinct student abilities.

### Place Indicators

The students' comment counts and comment interaction density, like the out-group peers' essay grades, not only replicated the pattern of the instructor's grades (A>D, E) but also indicated a more detailed difference (B>E; both  $KWx^2(df) = 17.000(4)$ ,  $p = 0.002$ ). The instructor comment count showed D>C (17.000(4), 0.002), revealing a sign of an undesirable indicator. The students' comment quality revealed C>D, E (17.000(4), 0.002), showing a correct value order but failing to meet the criterion (i.e. the instructor's grades; A>D, E).

### Process Indicators

None of the four version-history sub-indicators replicated the pattern of group difference in the criterion (i.e., the instructor's grade; A>D, E; Table 1). However, there were two group differences revealing a different picture: the instructor's version counts (B>C;  $KWx^2(df) = 17.000(4)$ ,  $p = 0.002$ ) and the students' essay version counts (D>E; 17.000(4), 0.002).

The essay version interaction density (A, E>C; 17.000(4), 0.002) slightly mismatched the order of grade values assessed by the instructor (i.e. A>B=C>D>E). There was no group difference in the students' essay version quality (3.500(4), 0.478). This might be because all the students contributed to their essays in both midterm and final-term essays. The small class allowed the instructor to make each student a successful completion of the assignment.

## Discussion

This study provides theoretical and practical contributions for pedagogy, assessment, and learning analytics: The FIC for theory and the identified effective and ineffective indicators for practice by learning analytics.

### The Theoretical Basis: From Course- to Ecology-Focused

SLT (Zeidler, 2016) and 4PCT (Hasirci & Demirkan, 2003) form the FIC (Figure 1), guiding the pedagogical, assessment and research design of this study. The use of the FIC in this study suggests that the FIC contributes to a specific course's pedagogical, assessment, and research design and emphasizes using collaborative learning to generate creative products. Future courses and studies may use the FIC as a base for their pedagogical, assessment, and research purposes, given that this study is a case study, with a small sample size, and its result cannot be generalized in nature.

**Limitations and Suggestions.** The FIC (Figure 1) has incorporated some indicators proposed by the SLT and the 4PCT. All the indicators, however, are situated in or constrained by the ecological support in relation to a course. For example, process refers to students' behaviours in the process of completing the tasks situated in or constrained by the Google Docs platform. Further, small classes (below or equal to around 30 students) is a typical practice of teacher-training courses in Taiwan. The issue of broad or whole ecological systems to support pedagogical, and assessment design should be addressed by ecological theories relating to information and communication technology (ICT) (Chiu, 2019; Johnson, 2010; Johnson & Pupilampu, 2008). Future research may elaborate the FIC by adding and examining a broader scope of ecological indicators.

### Effective Indicators

#### Out-group Peers' Assessment as a Proxy Measure of Instructors' Grades

Out-group peers' group essay grades state the criterion (the instructor's grading) reliably and even more precisely. The results appear to suggest the role of the out-group peers' grades as a proxy, efficient, and even accurate indicator of group essay grades (Taylor, Ryan, & Pearce, 2015) although there exists research indicating that out-group peers' assessment may be ineffective (ArchMiller, Fieberg, Walker, & Holm, 2017).

The reason for the positive role of the out-group peers' assessment in this study may be that this study uses an SLT-based teaching design. Further, the small class allows the instructor an opportunity to fully implement SLT-based teaching (the FIG or ESPA; Figures 1 and 2) by monitoring, scaffolding and catering students' progress and needs thoroughly. The SLT-based design emphasizes social interaction in the course process, similar to a design using social constructivism (Taylor, Ryan, & Pearce, 2015). The SLT designs a pedagogy where out-group peers have active involvement in the other groups' essays as research participants

(i.e., out-group peers serving as the students in the group essays on pedagogies) and conference attendees (i.e., midterm presentations), which may reduce out-group bias (Perry et al., 2018), increase mutual understanding, and generate accurate grading.

### Peer Comments as a Golden Rule for Improvement

Peer review has long been an effective practice for advancing academic knowledge, but is embedded with passive and negative effects (Lu & Bol, 2007). This study finds that comment counts and comment interaction density relate to final grades. The results suggest that in-group peers' comments or dialogues serving as a learning presence can have beneficial effects on group essay outcomes (Nicol, 2010; Shea et al., 2013).

Instructors need to have a pedagogical and assessment design inviting students to give more high-quality comments to group tasks. This study focused on two quantitative indicators: comment counts and comment interaction density (indicating active responses to comments), with the latter slightly, but still not completely, addressing the issue of high-quality comments. Although an interactive co-writing digital environment (e.g., Google Docs) makes commenting a convenient practice, the key may still be instructors' pedagogies (including assessment designs). For example, the course of this study was based on sociocultural learning theory (Zeidler, 2016), aiming to cultivate students' deep thinking and engage in interaction for improving their group essays. In addition, the pedagogies require instructors' deep and working content knowledge, pedagogical knowledge, and technological knowledge (Scherer, Tondeur, Siddiq, & Baran, 2018).

### Ineffective Indicators

#### Multiple Assessments for Different Student Abilities

This study corresponds to past research findings that different assessment measures reflect different aspects of students' abilities (Grossman, Cohen, Ronfeldt, & Brown, 2014). Many teachers use group work as only learning activity or formative assessment (without grading) and they tend to use a heavily weighted knowledge test as the final grading method.

Our findings show that the knowledge tests and group works assess different cognitive skills and suggest that group work should be graded to show the attainment of course objectives. The results suggest a need for instructors to identify the course objectives from the perspective of cultivating learners' diverse abilities, design pedagogies to address the objectives and incorporate assessment measures for students to demonstrate their diverse abilities.

#### Essay Version History as an Ineffective or Uncertain Indicator

Essay version history fails to relate to the instructors' group essay grades. The reasons for this result may be that different individuals have different writing

processes. For example, students may use MS Word more than Google Docs when writing their essays and this in turn reduces essay version history counts (Southavilay, Yacef, & Callvo, 2010).

However, the question remains whether group essay version interaction density (i.e., weighted simultaneous writing frequencies) relate to group essay grades, because this study appears to be the first in the literature to indicate this phenomenon. Future research needs to address and investigate this phenomenon further.

## **Contributions, Limitations, and Suggestions for Future Research**

### **Contributions**

**Educational Theories.** The FIC combines two theories (SLT and 4PCT) and generates a meaningful pedagogical, assessment and research design, which in turn leads to some successful findings in this study.

**Methodology and educational practices.** This study successfully identifies three major process-related indicators for group essay grades: out-group peers' assessment, group peers' comment counts, and group peers' comment interaction density.

### **Limitations and Suggestions**

Although it is common that the 4Ps are interwoven, a more comprehensive and elaborated framework still needs to be established in future research. This framework may direct a more detailed pedagogical design. Further, this study used nonparametric statistics due to the small sample size. Future research needs to validate the results using a larger sample size in order to extrapolate the results to similar processes of grading group essays and teaching practices. Thirdly, culture can affect grading behaviours. For example, Taiwanese students are more likely to keep weekly journals than students from other countries (Chiu, 2016). Finally, version history sub-indicators may vary with different stages of group essay writing (Southavilay Yacef, & Callvo, 2010). Future studies may resolve these issues, especially when they are able to use large sample sizes or incorporate qualitative research methods to supplement quantitative ones.

## **Conclusion**

This study evidences that a sociocultural learning theory (SLT) and 4P (Person, Product, Place, and Process) creativity theory (4PCT) combined framework can support the design of effective pedagogies for incorporating diverse assessments into teaching. Out-group peers' assessment is the most proxy measure for instructors' grades of students' group essays. Peer comments are a measure for improving student group essay quality (or grades). Knowledge tests and group works assess different cognitive skills.

For educational practice and policy, implications inferred from the results of this study include that the SLT-based pedagogy allows for out-group peers to have active involvement in the other groups' essays as research participants and conference attendees. This may reduce out-group bias and increase mutual understanding, and generate accurate grading. Instructors need to have a pedagogical and assessment design inviting students to give more high-quality comments to group tasks and actively respond to the comments. Instructors need to identify the course objectives from the perspective of cultivating learners' diverse abilities. Group work should be graded to show the attainment of course objectives.

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## **Preservice Elementary Teachers' Perceptions of the Learning and Teaching of Civil Rights**

*By Susanne I. Lapp\* & Rina Bousalis<sup>±</sup>*

Although civil rights have been a major part of United States history, it is often taught within a limited scope in elementary classrooms. As preservice elementary teachers have the potential to build the foundation of youth's participatory citizenship, this study aimed to investigate elementary preservice teachers' perceptions, attitudes, experiences, and background knowledge about civil rights in order to gain insight as to how they understand the content and teaching of civil rights. The findings indicate that while preservice teachers primarily and appropriately viewed civil rights as a matter of equality for all citizens, a majority of participants were unable to recognize significant figures other than those that textbooks commonly mention as contributing to the advocacy of civil rights. Moreover, the data suggested that the topic of civil rights should mainly be taught during middle school – or even later during college. As the study revealed that elementary preservice teachers entering their education program methods courses have contradicting ideas about learning and teaching the topic of civil rights, suggested activities and strategies are offered for preservice teachers to better understand civil rights and create lessons that reflect the diversity in their classroom.

*Keywords:* elementary preservice teachers, civil rights, United States history, social studies, perceptions

### **Introduction**

Civil rights, the basic human rights that every United States citizen has under the laws of the government, are protected by the U.S. Constitution and laws such as the Civil Rights Act of 1964 that established that regardless of race, nationality, or religion, no person should experience discrimination. Yet, this philosophical stance has been challenged over the centuries with matters centered on diversity and inequality. In an era of diversified classrooms, cultural movements, and growing tensions, it is vital that elementary preservice teachers build the foundation of their future young students' civil rights knowledge and understanding of how historical individuals took enormous steps to acquire and safeguard civil liberties (Hubbard, 2019). However, given that it is daunting for some teachers to incorporate cultural history into lessons, particularly when there is a breadth of academic content standards that methodically need to be met, the textbook has often become teachers' main source of instruction (Gautschi, 2018).

Although textbooks may advance students' background knowledge of basic facts, textbooks have the tendency to weaken interpretations of civil rights

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\* Associate Professor, Florida Atlantic University, USA.

<sup>±</sup> Associate Professor, Florida Atlantic University, USA.

significant leaders, events, and issues (Jimenez, 2020). Since a majority of preservice students who enter university teacher programs were they themselves educated within a standard-based curriculum, the study's aim was to explore how elementary teacher candidates perceive civil rights and what they bring with them into their social studies and English language arts methods courses by investigating: a) What are elementary preservice teachers' attitudes towards civil rights? b) What is elementary preservice teachers' background knowledge about civil rights? and c) What are elementary preservice teachers' previous experiences learning about civil rights? The results of the study provided university methods instructors the groundwork to strengthen or enhance preservice teachers' ability to learn and teach civil rights.

## **Literature Review**

### **Curriculum and Instruction**

The National Council for the Social Studies (2018) stresses the need to assist educators and students into becoming well-informed citizens in order to establish and maintain democracy. Giroux (2016), a staunch supporter of democratic education, promotes the notion of critical pedagogy and how the classroom can be the setting for students to engage in dialogue when connected to class, gender, ethnic, and racial issues, and as a result, students can become motivated to take civic action. Ladson-Billings (2021) expresses that students have improved potential to understand civil rights when exploring the topic in a more personal and intense manner, particularly through literary primary resources that depict authentic examples of individuals who have experienced injustices. Yet, due to teacher and student pressure to prepare for high stakes testing on prioritized subjects such as STEM (science, technology, engineering, and mathematics), particularly in the elementary classroom, the subject of social studies and the topic of civil rights in English language arts is often given less attention (Oakes, Lipton, Anderson, & Stillman, 2018).

Though the current education system is built around state standards that do require students to learn about the topic of civil rights, there are often shortcomings. For example, Eargle's (2016) study found that social studies state standards failed to include African American history, despite the State reported they did. Similarly, Asian Americans were found to be absent from a list of numerous state standards, thus undermining Asians' contributions to the narrative of the United States (An, 2016). Further, Krueger (2019) determined that history state standards often failed to recognize Native Americans' cultural history and instead represented them as savages, warriors, and indigenous people from the past who lived in tipis. Preservice educators' perceptions, understanding, and experiences often impact how they will instruct their future students (Vesperman & Caulfield, 2017). For these reasons, preservice teachers, or soon-to-be teachers, who most likely have been taught under a standards-based curriculum, may find it challenging to learn and teach the concepts of civil rights. They may also experience difficulty in

evoking civic engagement from their future students if they enter their teacher education program methods courses unaware about the content of civil rights and the goals of social studies and language arts.

Preservice educators who express disinterest in any subject they were required to learn during their K-12 schooling, often feel disconnected from the subject, even when becoming practicing teachers (Kessler, 2021). To exemplify, Streit's (2018) research that examined preservice teachers' detachment in learning found that teacher candidates who fell into this grouping often lacked mindfulness, or the awareness of what they were learning, primarily due to external factors in their lives. Chang's (2018) research explained that when disengaged preservice teachers begin teaching during their internship and are faced with instructional challenges such as standardized testing, conflicting personal beliefs, language/communication issues, and/or having a lack of content knowledge, they often find it difficult to cross over the line from "studenthood" to "teacherhood" (p. 48), and as a result, fall back on how and what they were taught in their prior schooling. Miller and Shifflet (2016), who investigated whether elementary preservice teachers' recollections of their previous schooling would steer their future teaching methods, found that when preservice teachers began to teach in their own classrooms, their instructional practices were often mirrored to their past teachers' style. Preservice teachers admitted that while in grade school, they were often exposed to traditional instruction (teacher-directed lecture with whole class instruction) rather than an active, problem-based learning approach as advocated in their education method courses (Miller & Shifflet, 2016). Since the topic of civil rights has a deep connection to the 1960s Civil Rights Movement, an era that beckoned lawful equity in all aspects of society, Schultz (2016) suggests that many preservice teachers might perceive "the Civil Rights Movement as ancient history" (p. 34), and therefore may choose not to learn or teach the topic in their future classroom.

Other preservice teachers might feel leery about discussing culturally relevant or controversial topics as they may find the content inappropriate for the elementary setting, insensitive to students, and objectionable to parents or school administrators (van Kessel, Jacobs, Catena, & Edmondson, 2022). Swalwell and Pellegrino's (2015) investigation on how teachers make curricular decisions in a unit of study on civil rights found that educators who reviewed photographs from a compilation of 25 historical figures only selected photos of figures who they themselves were familiar with or whom they believed their students would recognize (such as Ruby Bridges, the first African American child to desegregate an all-White elementary school in New Orleans, Louisiana) and discarded the images of figures who they were not familiar with or which they felt were too explicit (such as the photograph of Gordon, the enslaved individual whose back exposed deep cuts and scars) and would distress young students. Tatar and Adiguzel's (2019) study that examined the inclusion of controversial topics in the classroom concluded that topics such as human rights and gender were often missing from lessons. Ho, McAvoy, Hess, and Gibbs (2017) found that although most scholars appropriately report the use of discussion as an instructional approach for students to learn about and reflect upon the context of civil rights,

what tends to be missing in their research literature is the importance of emotions. As Jeffries (2018) suggests, educators might prefer to “have the Disney version of history, in which villains are easily spotted, suffering never lasts long, heroes invariably prevail, and life always gets better” (para. 7). Consequently, a teacher’s decision to incorporate topics is often based on how they personally feel about the content (Adams & An, 2020).

When the topic of civil rights *is* taught, it may be in a manner that inadequately portrays culture, class, or significant historical figures (Nygren & Johnsrud, 2018). Banks (2013) refers to this reduced teaching method as the “heroes and holidays” approach (p. 74). For example, a class may hold a multicultural festival that is highly enjoyable, but inadvertently highlights only the outward surface culture of diverse countries. The same could be said when students are taught a few lessons filled with little more than facts about heroes such as Dr. Martin Luther King, Jr. – and only during Black History month. Rozich’s (2016) autoethnography explains how she, like other educators, dutifully taught students the required standards, but eventually realized how her lessons lacked substance. For instance, after asking her students to choose an important historical leader from a list that included individuals such as Eleanor Roosevelt, Dr. Martin Luther King, Jr., and Cesar Chavez, students primarily selected Dr. King. After questioning students why they did not select other leaders from the list, students reported that it was because they “did not know those other people” (Rozich, 2016, p. 82). As all students are vulnerable to racial, class, linguistic, and gender oppression (Banks & Banks, 2019), it is important to also highlight the lesser-known significant figures who contributed to civil rights irrespective of teachers’ personal beliefs, particularly since students are more than willing to learn about significant figures that interest them or are just like them (Kleczej-Siara, 2019). Critical historical gaps expressed in these examples reveal the incomplete view of history by which students are taught and tested (Hughes & Drake Brown, 2021). Therefore, it is important for students and preservice teachers to understand the experiences of a variety of individuals who sacrificed their lives for freedom and how civil rights impacted people’s lives in the past and impact lives in the present.

## Methodology

### Setting and Participants

The study was conducted at a large, urban university in south Florida which had recently earned the distinction of being a Hispanic-serving institution with at least 25% Hispanic undergraduate, full-time equivalent student enrollment. According to the university’s diversity data report, the participant demographics reflected a diverse student population. With over 4000 students enrolled in the college, Whites (49%) made up the majority of the college’s enrollment, followed by Hispanic (23%), Black (21%) and Asian (2%) students. Participants in this study consisted of 27 (out of 57) elementary preservice teachers who were enrolled in the university’s College of Education’s four required university teacher-

preparation courses: two undergraduate social studies methods courses and two undergraduate English language arts courses that teach the topic of civil rights. Since preservice teachers are required to take and pass these courses prior to the end of their student-teaching semester, most of the participants were within one to three semesters from graduating. Although most participants were in their twenties to early thirties, there were also a few who made a career switch into the field of education and were in their early thirties to mid-forties.

### **Instrument**

As the study was to examine elementary preservice teachers' perceptions, attitudes, and experiences regarding the topic of civil rights, to arrive at a measurable finding, a mixed-method study design was employed using a Qualtrics online survey. The investigators determined that a self-created survey was better suited to their research objectives since it would adhere closely to the study's prespecified inquiries (Braun et al., 2021). A conceptual model helped simplify the task of item selection and categorization and provided a rationale for the inclusion of each item. The following checklist initially served as a systematic guide for researchers to categorize themed responses, organize notes, and compare survey results (see Table 1).

*Table 1. Civil Rights Data Collection-Themed Checklist*

The meaning of civil rights
Knowledge about civil rights
Importance of civil rights
Teaching civil rights
Connecting past civil rights issues and movements to the present
Discussing social differences
Readiness to teach civil rights

The survey appeared in Qualtrics, a computer survey system which was freely available to all preservice teacher-students, thus ensuring that the investigators would likely yield a representative sample of the population of interest. To gain insight as to what students think, understand, and feel about civil rights prior to fully engaging in the topic during their semester courses, the survey was administered online during the first week of class. Since respondents were asked to express their experiences and opinions about civil rights issues, the investigators believed that respondents were more inclined to offer in-depth information if the survey was administered online and responses were anonymous, as the Qualtrics survey system was created to do.

The survey included 23 questions: eight Likert scale-type questions (extremely to not at all) and 15 free response questions. The online survey took approximately 20 minutes for respondents to complete. While the quantitative data highlighted the marked answers and the qualitative data emphasized the coding of key words and themes within the free response questions, both sets of data were interconnected. Throughout the survey, researchers kept analytical memos,

calculated and analyzed participants' responses, noted keywords and themes that frequently appeared, and thematically organized the data.

Table 2. Coding Categories

FR: Free Response question LS: Likert Scale response					
Background Knowledge of Civil Rights N = 11 questions			Ability to Teach About Civil Rights N = 12 questions		
Category	Question	Question Type	Category	Question	Question Type
Defining Civil Rights  Civil Rights Leaders & Their Methods	What are civil rights?	FR	Curriculum & Civil Rights	What are the goals of civil rights?	FR
	What are the purposes of civil rights?	FR		Which civil rights topics should be taught by preservice teachers?	LS
	How knowledgeable are you about civil rights?	LS		When should civil rights be taught?	FR
	Name and explain leaders of past civil rights movements.	FR		Can teaching about civil rights movements overcome injustices that exist today?	FR
	What methods and techniques did civil rights leaders use to fight for their civil rights?	FR		Do you think it is important to avoid controversial civil rights topics in classroom discussions?	FR
Civil Rights Local or International	Has media influenced our students' knowledge about civil rights?	LS	Materials, Tools, & Strategies will Use to Teach Civil Rights	What sources of information will you use to teach about civil rights?	FR
	How are civil rights movements related to the goals of democracy?	LS		What materials and instructional tools were used by your previous teachers to teach you about civil rights?	FR
	Should global perspectives be included in discussions about civil rights?	LS		What were the most effective strategies your teachers used to teach about civil rights?	FR
Civil Rights Impact	Has learning about civil rights movements made you concerned about civil rights issues?	LS	Knowledge of Civil Rights	How will the teaching of civil rights impact your future classroom?	FR
	Evaluate how civil rights impacted your personal life?	FR		Do you think you are prepared to teach about civil rights?	LS
	How has learning about civil rights encouraged you to discuss racial, religious, ethnic, class, gender & other social differences with others?	LS		Will you be interested in learning more about civil rights?	FR
				Would you be interested in attending civil rights workshops?	FR

Each question was divided into one of two categories: the first category, Background Knowledge of Civil Rights, was separated into four subheadings: a) definitions of civil rights, b) major leaders of civil rights issues and movements, c) civil rights issues and movements, and d) the personal impact of civil rights in personal lives. The second category, Ability to Teach About Civil Rights, was separated into three categories which included: a) application of civil rights content in the curriculum, b) previous civil rights instruction, and c) teaching about civil rights (see Table 2).

To ensure data triangulation and interrater reliability, the researchers first analyzed participants' survey responses (calculations and coding analysis), created a collection of detailed and varied notes on participants' responses during each analysis, and then compared the first analysis of data results to the second. To validate the study's findings, a data meeting was held where researchers discussed and confirmed the study's results. This process reduced the possibility of misreading the results and established reliability in our findings.

### **Limitations**

Although participants in this study consisted of 27 preservice teachers, the sample size was limited to the number of preservice teachers/students enrolled in these specific courses; however, the participant demographics reflected a diverse student population large enough to gain results.

Due to the differences in age and backgrounds, it was difficult to determine if participants' level of content knowledge was a result of having been previously taught about civil rights in their K-12 schooling or post-secondary courses. However, as the sample population was large enough to determine an overall picture of how preservice teachers perceived civil rights and the extent of their knowledge about civil rights, the researchers did not divide respondents by age.

## **Results**

### **Preservice Teachers Define Civil Rights**

Approximately half of the survey questions were related to elementary preservice teachers' background knowledge about the historical, social, and the political aspects of civil rights. Within these questions, three focused on the respondents' ability to define and address the purpose of learning about civil rights. When asked to define civil rights, 52% of the participants reported that civil rights ensured that citizens would be treated with equality or fairness under the law (43% of responses specifically mentioned that civil rights should be granted exclusively to American citizens). Respondents also made reference to how it was vital that young students are taught to appreciate the historical implications of civil rights, that it is the responsibility of all educators to ensure that future generations of Americans would be educated about the civil rights, and that a society which supports civil rights should embrace a high level of social justice and personal freedom. Furthermore, respondents reported that civil rights complemented the American notion of independence and individualism, and that civil rights leaders risked their lives so that future generations of Americans could live freely and independently in an open society.

When participants were asked to rate their background knowledge of civil rights, 70% of the respondents reported that they were only moderately knowledgeable about civil rights while 15% admitted to being slightly

knowledgeable. It was noted that only 4% of respondents felt extremely knowledgeable and 11% felt *very* confident in their knowledge about civil rights.

### Preservice Teachers Identify Civil Rights Leaders

From an extended list of significant civil rights leaders, respondents were asked to select the ones they were familiar with and to describe their contributions to civil rights. The list of leaders included, but was not limited to, Rosa Parks, Bayard Rustin, Mahatma Gandhi, Malcolm X, Susan B. Anthony, Caesar Chavez, and Dr. Martin Luther King, Jr. Fifty-one percent of the respondents recognized Dr. King, Jr. as a civil rights leader who advocated nonviolence within society and demanded social change. Other leaders included Rosa Parks and Malcolm X who received 17% and 10%, respectively, while leaders such as Mahatma Gandhi and Susan B. Anthony were mentioned by less than 4% of the respondents. Other leaders such as Bayard Rustin, Philip Randolph, and Harriet Tubman were noted by less than 1% of preservice teachers. When asked to identify these leaders and their contributions, many preservice teachers only identified them in abbreviated form (e.g., MLK or Rosa) or simply used one- to two-word descriptions to explain who these leaders were or their contributions to civil rights (i.e., Alice Paul women's rights).

Researchers then provided respondents with an extended list of methods of dissent used by civil rights leaders that included, but were not limited to, nonviolent protests, sit-ins, marches, boycotts, speeches, going to jail, or expressing themselves through art and music. Approximately 35% of the respondents equally listed nonviolent protest and protest as the most important techniques. Methods such as boycotts were less frequently cited, and practices such as speeches, civil disobedience, or going to jail were rarely noted (see Table 3).

*Table 3. Which Techniques Did Leaders of Past Civil Rights Movements Support?*

<i>n</i> = frequency of 27 participants' "check all that apply" responses								
<i>Responses</i>	<i>n</i>	<i>%</i>	<i>Responses</i>	<i>n</i>	<i>%</i>	<i>Responses</i>	<i>n</i>	<i>%</i>
Nonviolent protesting	8	33.75	Protests	10	37.04	Peace	1	3.70
Civil disobedience	2	7.40	Speeches	1	3.70	Jail	1	3.70
Equality	1	3.70	Boycotts	2	7.40	The arts	1	3.70
Sit ins	4	14.81	Civil discourse	1	3.70	Open-mindedness	2	7.40
Voices	1	3.70	Political lobbying	1	3.70	Marches	3	11.11
Violence	1	3.70	Education	2	7.40	No response	3	11.11

### Preservice Teachers Recognize Civil Rights Issues

The next set of questions sought to evaluate preservice teachers' ability to connect past civil rights issues with more contemporary issues related to democracy. Fifty-two percent of respondents believed that democracy is extremely related to civil rights; however, the remaining half were dispersed among mostly to slightly. A follow up question that asked preservice teachers whether learning about civil rights movements made them concerned about issues acknowledged that 37% of participants were extremely concerned while 33% were mostly concerned about preserving their civil rights. In response to whether learning about civil rights had encouraged preservice teachers to discuss racial, religious, ethnic, class, gender, and other social issues with others, 44% reported they were extremely encouraged to discuss aspects of civil rights. However, the other half of respondents were either mostly encouraged (19%) or moderately (22%) encouraged to discuss civil rights issues (see Table 4).

*Table 4. Participant Responses to Extremely to Not at All Questions: n =27*

Question	Extremely		Mostly		Somewhat		Slightly		Not at All		No Response	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Are the civil rights issues and movements related to the goals of democracy?	14	51.86	7	25.93	2	7.40	2	7.40	0	0.00	2	7.40
Has learning about civil rights movements made you concerned about civil rights issues?	10	37.04	9	33.33	3	11.11	1	3.70	0	0.00	4	14.81
Has learning about civil rights encouraged you to discuss racial, religious, ethnic, class, gender, and other social differences with others?	12	44.44	5	18.52	6	22.22	0	0.00	0	0.00	4	14.81

An additional question was asked about whether participants felt that global perspectives needed to be included in discussions about civil rights. The percentage breakdown reflected that nearly half (54%) of the participants believed that global perspectives are extremely important to civil rights; however, the other half of the respondents believed global views were only moderately or slightly important.

### Preservice Teachers' Previous Education on Civil Rights

Preservice teachers were then asked to reflect on their previous schooling experiences when learning about civil rights. Questions focused on the materials and instructional tools used by the respondents' former teachers that helped them learn about civil rights. While nearly half of the respondents (48%) mainly

reported that their teachers used documentaries and movies, 35% of the participants also acknowledged that their teachers relied on textbooks.

When reflecting on the quality of instructional formats used by preservice teachers' former teachers to teach about civil rights, 37% of the respondents stated that whole-class lectures were the most effective instructional format used to help them learn about civil rights. In contrast, 42% of the respondents listed problem-based learning (a method that involves group work and active learning) as their least effective instructional strategy used by their former teachers. It is not clear if preservice teachers thought these methodologies were the most effective for their teachers at that time or whether preservice teachers believed that these instructional methods were the best techniques currently used by teachers, however, respondents did report that traditional lectures were more effective when compared to other instructional formats.

### Preservice Teachers Reflect on Civil Rights

To gain insight of preservice teachers' background knowledge of civil rights, respondents were asked to consider the impact of civil rights to their own lives. The most frequent free response answers centered on issues such as job inequalities, civil liberties, government policies, and aspects of discrimination. Responses included: "I am a lesbian . . . there is still a concern of what parents might think about having a gay person in the classroom," "Civil rights is knowing that no one has the right to discriminate against me," "Without civil rights, I could be banned from certain places and from voting because I am Jewish," and "As a woman, I am still paid less than my male counterparts and I think that that is discriminatory" (see Table 5).

*Table 5. How Do Civil Rights Impact your Personal Rights?*

<i>n</i> = frequency of 27 participants' "check all that apply" responses					
<i>Responses</i>	<i>n</i>	<i>%</i>	<i>Responses</i>	<i>n</i>	<i>%</i>
Aware of my rights	2	7.40	Freedom of decision	1	3.70
Freedom of speech	1	3.70	Voting	1	3.70
Privileges	1	3.70	Religion	1	3.70
Aware of government	2	7.40	Economics	1	3.70
Gender discrimination	4	14.81	Access	1	3.70
Discrimination of self	3	11.11	Respect	1	3.70
Discrimination towards others	2	7.40	Human trafficking	1	3.70
Race	1	3.70	Job	3	11.11
Happiness	1	3.70	Freedom of life	1	3.70
I do not know	1	3.70	No response	1	3.70

### Application of Civil Rights Content in the Classroom

Approximately 38% of the participants' free responses noted that the goal of civil rights instruction was primarily to teach students to treat each other civilly, stand up for themselves, and defend their opinions and beliefs. A follow up question asked preservice teachers about the most developmentally appropriate time to teach students about civil rights, upon which 26% of participants reported that elementary-age students between the 4th through 6th grades can be introduced

to the topic of civil rights. However, a slightly larger number of the respondents (33%) believed that the topic of civil rights should not be taught during elementary, but during middle school. Most notable was that 11% of preservice teachers felt that it was better to teach students about civil rights in high school – and even later during college (see Table 6).

*Table 6. When Should Civil Rights be taught?*

n = frequency of 27 participants' responses															
Birth-PreK		Primary (grades K-3)		Intermediate (grades 4-6)		Middle school (grades 7-8)		High school (grades 9-12)		College/university		Not at all		No response	
n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	3.70	3	11.11	7	25.93	9	33.33	3	11.11	1	3.70	0	0.00	3	11.11

Preservice teachers were also queried about the benefits of teaching civil rights to overcome injustices that exist today. A majority of the respondents (83%) agreed that teaching about civil rights can help overcome injustices faced by society. Preservice teachers noted that “through education, young people will learn from past mistakes,” “. . . apply useful techniques to real world problems,” and “. . . learn new ways to engage children in historical lessons which will positively impact their lives.” Several respondents suggested that parents play a critical role in the lives of students: “parents must serve as positive role models for their children” and “. . . involve their children in the civic activities with the goal of raising strong citizens who will actively support their communities.”

### **Curricular Decisions Preservice Teachers will make to Instruct Future Students**

When participants were asked to identify the most effective forms of literature to teach civil rights, 47% of the participants primarily listed biographies, oral histories, diaries, and poetry. While adult literature, newspapers, and magazines appeared to be somewhat effective, respondents' least favorite source of literature was digital texts.

An additional question asked preservice teachers whether they would avoid teaching controversial topics within the classroom. Nearly half (49%) of the participants felt it was important to talk about issues related to civil rights and 29% believed that these discussions can encourage students to think critically; however, the other remaining responses chiefly centered on how it depended on the age of their students and what students' parents thought.

### **Preservice Teachers' Professional Desire to Enhance their Knowledge of Civil Rights**

While 65% of the participants reported that they were interested in becoming involved in extracurricular activities either at school or within the community to further their interest in civil rights, 35% were less enthusiastic about participating in civil rights-related activities. Although a slim majority of preservice teachers

commented how they would like to engage with others in the community to extend their knowledge about civil rights, there was a substantial number of respondents who rejected the idea of taking part in school or community activities surrounding the topic.

When asked: How will the teaching of civil rights impact your future classroom? Elementary preservice teachers' accounts were varied. Responses such as "Civil rights will make . . . [students] aware of the past," ". . . understand adversity," ". . . think critically," and ". . . empower students" each scored 14%. Despite participants' word choice in expressing their views, nearly all of the 27 participants' responses suggested that the teaching of civil rights would have a positive impact on students.

## **Discussion**

### **Attitudes towards Civil Rights**

The study's findings revealed that elementary preservice teachers primarily and appropriately define civil rights as a matter of equal rights for citizens and believe that the purpose of civil rights is to be aware of the historical events in order to understand the struggles associated with adversity. Though participants reported that an important impact of civil rights mainly centered on issues of discrimination, it is not known if they have or have not experienced discriminatory practices; however, nearly all participants expressed their concern about future threats. While there were a few respondents who were more pessimistic of civil rights impact and expressed that they were overwhelmed by the history of injustice, others suggested innovative instructional practices such as cross-cultural workshops and programs, and story-telling events to help students learn about and hear stories of survival and resilience.

Preservice elementary teachers were all-encompassing in their view of the importance of learning and teaching the topic of civil rights, yet there were several unexpected and contradictory results. For example, a majority of the participants reported that they were willing to discuss aspects of civil rights in their future classrooms but when asked what is the most developmentally appropriate age for students to learn about civil rights, nearly half of the total respondents reported that the topic should be delayed and taught during middle school, high school, or even later during college. This conflicting response may suggest the reality of Swalwell and Pellegrino's (2015) study findings that expressed how many teachers would rather avoid the topic of civil rights and contentious issues with students in the classroom, feel that the content may be too graphic to be taught at an earlier age, or that older students are more capable of handling the harsh details and events connected to the topic of civil rights.

## **Background Knowledge**

Although a majority of the preservice teachers' responses centered on how they wanted their students to recognize and appreciate the sacrifices of previous generations of civil rights leaders and see them as positive role models, respondents demonstrated limited knowledge of civil rights leaders and their contributions as they mainly focused on traditionally recognized leaders. Aside from Dr. Martin Luther King, Jr., Rosa Parks, and Malcolm X, no other civil rights leader appeared to be significant. When participants were asked to provide information on the leaders, most respondents did not go into detail or make meaningful connections with the leaders and their contributions. This quandary correlates with Rozich's (2016) study that suggests that it is likely students are not familiar with lesser-known civil rights leaders because they were never taught about them – or not taught enough about them. It also appeared that respondents were unfamiliar with the extent of techniques used by civil rights leaders since nonviolence, a method of protest directly connected to Dr. Martin Luther King, Jr., was mainly reported as a technique used by civil rights leaders. These responses correlate with over three-fourths of the preservice teachers acknowledging that they possessed only limited knowledge of civil rights. The self-reported information is significant in light of the preservice teachers' instructional goals of successfully preparing their future students to understand the historical implications of civil rights. The examination of how certain terms and descriptions of civil rights were acknowledged while others were avoided revealed which topics needed to be further developed in university instruction.

## **Experience in Learning Civil Rights**

When participants were asked to reflect on the materials and methodologies used by their former teachers to teach about civil rights, many elementary preservice teachers reported that their previous teachers relied on textbooks (materials which have been found to offer limited opportunities for students to develop higher-order thinking skills) (Tarman & Kuran, 2015) and movies (which have the power to teach but are created to entertain). When respondents were asked about which sources of information they planned to use in their future classroom to teach about civil rights, they appeared to rely on the same traditional methods their former teachers depended on when reporting that lectures (often associated with textbook usage) and documentaries/movies were most effective. Preservice teachers found these methodologies more appealing than the ones being taught in their university methods courses. Most unanticipated was that a majority of participants viewed problem-based learning as the least effective means of instruction. This may be tied in with the research done by Miller and Shifflet (2016) of how preservice teachers tend to perceive past teachers' instructional methods as effective or ineffective ways to learn, are influenced by their former teachers' instruction, and are inclined to teach in their classroom as they were taught during their previous schooling.

## **Implications**

For preservice teachers to reach their teaching goals, they must acquire an in-depth understanding of civil rights history, learn how to incorporate the aspects of civil rights into not only social studies lessons, but all lessons, and gain confidence in teaching the topic. Echoing Ladson-Billings (2021) approach, university instructors must help preservice teachers find a sense of purpose in, engagement in, and relatedness to teach the topic. We present a few suggested strategies and activities for elementary preservice teachers to engage in during their education methods courses.

To begin, it is important to go beyond the commonly taught textbook narratives of civil rights events and leaders, and learn to teach in a more in-depth manner that focuses on not only well-known significant figures such as Dr. Martin Luther King, Jr. and Rosa Parks but also cross cultural individuals such as Native Americans, immigrants, and women who are absent or overlooked in the curriculum but who contributed to the cause (Theoharis, 2018). It is essential that preservice teachers learn to integrate literature (e.g., autobiographies, diary entries, ethnographies, passages from documents, picture books based on historical research, significant figures' penned poetry and speeches, etc.) that genuinely express a leader's life, emotions, and stance on civil rights. These sources will also allow students to compare events such as the 1960s Civil Rights Movement to present-day movements and activists. Preservice students can learn how to retrieve, examine, and analyze primary sources such as photographs and documents (e.g., excerpts of speeches and newspaper articles) that reflect an individual's call for civil rights. Since the use of technology is an essential tool for student learning and teacher instruction, preservice teachers can search the vast number of archived primary sources at internet sites such as the National Archives: 100 Milestone Documents located at <https://www.archives.gov/milestone-documents/list>, the National Archives: Digital Photography Collection at <https://www.archives.gov/research/alic/reference/photography>, the Library of Congress: Digital Collection at <https://www.loc.gov/collections/>, and the Smithsonian Institution Archives at <https://siarchives.si.edu/>. To highlight women's rights activists, sites such as the National Women's History Museum at <https://www.womenshistory.org/womens-history> can offer images, teaching strategies, and stories of women who advocated for justice.

Preservice teachers should be encouraged to create inter- and multi-disciplinary based lesson plans that infuse various subjects. For example, geography has a profound connection to the cause and effect of historical events in terms of where events took place and how place determines one's rights (e.g., states and district laws are determined by borders). Maps can be used to analyze characteristics of place (physical features, demographics, rural versus urban, etc.) and compare past and present maps to decipher whether aspects of civil rights in certain areas have changed or stayed the same. Music can be integrated to reflect lyrics that pertain to civil rights issues such as Marvin Gaye's 1971 classic song "What's Going On," decipher which present-day songs are considered protest songs, or for students to write their own songs about social injustices taking place today. Visual art such as paintings, illustrations, and political cartoons that portray civil rights

concerns can be analyzed (e.g., who was the artist and what was his/her message?). Since the study suggested that many preservice teachers lacked interest in having their future students engage in problem-based learning (or perhaps lacked the confidence in their ability to practice this strategy), group activities can focus on applying content knowledge and comparing multiple perspectives on past to present civil rights issues. For example, students could conduct research about how figures such as W. E. B. DuBois and Booker T. Washington fought for the same cause but differed in their methods used to achieve their aspirations (Clabough, 2021). To gain a sense of historical significance, drama can be used in role-plays, or acting out scenes that describe the setting, characters, and issues during an event. Scripts can be written by students.

As many preservice teachers' responses described civil rights knowledge at the recall level (Tarman & Kuran, 2015), it is essential that they practice the skill of asking and/or responding to higher level questions (particularly open-ended questions that evoke more than one- or two-word responses). The use of graphic organizers such as the "I See," "Think," and "Wonder" chart draws on critically thinking about the social (race, ethnicity, class, gender, etc.), economic (equal pay, housing, etc.), and political (laws, restrictions, and Supreme Court Acts) facets of civil rights within a framework that also encourages further inquiries.

Preservice teachers' interest in discussing controversial issues in the classroom – but fear of repercussions from administration and parents – expresses the need to practice conducting discussions that are supported with researched information and approached with sensitivity to make sure that students do not feel uncomfortable. Civil rights dialogue can also be achieved by having students conduct oral histories, or interviews, with community members who have knowledge or experience of civil rights issues (e.g., attorneys, protestors, or individuals with personal civil rights stories) or invite guest speakers into the course to share their stories. Preservice teachers can also be taken on field trips to local community historical and heritage sites where guides (or the teachers themselves) thoroughly explain the history of an event or issue.

To enhance elementary preservice teachers' knowledge about civil rights, workshops can enable learning opportunities; however, since attending in-person workshops may be too time consuming for preservice teachers as many juggle schoolwork with personal responsibilities and COVID-19 has limited unnecessary traveling, it is important for method course instructors to consider alternative opportunities such as developing online learning modules and webinars.

## **Conclusion**

The study offered insight into how elementary preservice teachers care about civil rights, recognize the importance of civil rights in their lives and their future students' lives, and have the desire to equip their students with the knowledge to empower and defend themselves when confronted by others. However, as the study revealed, preservice teachers are in need of support in preparing to teach this important topic. Through the enhancement of the curriculum with engaging

strategies and activities, elementary preservice teachers can set the groundwork for their future students' participatory citizenship, create meaningful lessons that teach civil rights, and instill a classroom environment that represents the diversity in their future classroom. Preservice teachers, as well as students, will be offered a more authentic view of civil rights and human history when focusing on the people who faced, or still face, injustices, and who took up the mantle of freedom in hopes that future generations would benefit from their struggles and advocacy.

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## **E<sup>2</sup>: Equity and Excellence Framework**

*By Adrienne Coleman<sup>\*</sup> & Traci Ellis<sup>±</sup>*

Both the United States and the United Nations have identified, examined, and put out a call to action to address the educational inequities that have disproportionately and negatively affected racially minoritized students, as well as those from a lower socioeconomic background, and poorer countries. Data from the Nations Report Card and the Global Monitoring Report provide evidence of disparities in academic performance and access to equitable educational resources. The outcome of these inequities impacts countries throughout the world, as their residents will not possess the skills and knowledge to thrive in a rapidly evolving global society, nor possess the critical thinking and analytical skills to solve the problems of the world. Considering there is a national and global equity focus, the Illinois Mathematics and Science Academy engaged in a process of participatory action research to institutionalize and operationalize equity and excellence, ultimately addressing educational inequities. This resulted in the development of the E<sup>2</sup>: Equity and Excellence Framework, inclusive of the following equity pathway steps: Educational Equity Impact Case, Equity and Excellence Policy, Equity-mindedness Capacity Building, Equity-mindedness Data Collection, Equity-mindedness Meaning-Making, Equity and Excellence Plan, and Equity Scorecard. This framework is a comprehensive, research-informed, equity-minded, inclusive pathway towards advancing educational equity that centers the voices of those with the most risk of experiencing inequities. Educational institutions that want to confront, diminish, and potentially eliminate educational inequities can apply this scalable and adaptable framework.

*Keywords:* equity, educational equity, educational inequity, inclusive education, excellence

### **Introduction**

Equity was initially introduced in scientific literature in 1948, but it was not until 1990 that there was national and global focus on it, beginning with the evolution of equality to equity. Subsequently, in 2004 more countries began to conceptualize equity within the context of education (Jurando de los Santos, Morento-Guerrero, Marin-Marin, & Costa, 2020). While this focus on educational equity has existed for nearly twenty years, educational inequity persists, disproportionately affecting marginalized communities including students of color and low-income students, as well as students who live in less developed countries. Specifically, in the United States, it has been reported that the education system is failing to provide equitable

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<sup>\*</sup>Director of Equity and Inclusion, The Illinois Mathematics and Science Academy, USA.

<sup>±</sup>Chief Equity Officer (Retired), The Illinois Mathematics and Science Academy, USA.

opportunities and outcomes (ECCBN, 2016; Bauman et al., 2005). Regarding students of color, the National Association of Diversity Officers in Higher Education (2021) reports that they have negative experiences in education that lead to lower academic persistence, retention, and graduation rates. In addition, both lower income and students of color are underperforming on state and national assessments (Plucker, Hardesty, & Burroughs, 2013). The Association of American Colleges and Universities (2015) states:

Expanding access to quality education is key to making opportunity real for all. It is key to closing America's deepening divides, strengthening the middle class, and ensuring our nation's vitality. Yet at all levels of U.S. education, there are entrenched practices that reinforce inequities—and that lead to vastly different outcomes for low-income students and for students of color. We are failing the very students who must become our future leaders.

Without a focus on equity within the context of education, the United States could face challenges in remaining a global leader. All students will not have the knowledge and skills to succeed as contributing members of a rapidly changing, global society, regardless of factors such as race, gender, sexual orientation, ethnic background, English proficiency, immigration status, socioeconomic status, or disability (Center for Public Education, 2016). To address these educational inequities, there needs to be systemic change in education, examining culture, policies, practices, and programs through a lens of equity and developing equity-minded administrators and educators (ECCBN, 2016; NADOHE, 2021).

These same concerns with educational equity exist on the global level, especially as it relates to socio-economic status. According to the Global Monitoring Report, “there are still 58 million children out of school globally and around 100 million children who do not complete primary education” (Ainscow, 2016; International Bureau of Education, 2016).

The world's poorest children are four times more likely not to go to school than the world's richest children, and five times more likely not to complete primary school. Conflict remains a steep barrier, with a high and growing proportion of out-of-school children living in conflict zones. Overall, the poor quality of learning at primary level still has millions of children leaving school without basic skills (Ainscow, 2016).

On a global level, economically disadvantaged students are approximately one year behind in schooling, compared to those more economically advantaged, and they typically score 39 percent lower on educational assessments (ASIA Society, 2014). To confront these inequities, the United Nations has called for countries to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (United Nations, 2021). A model of inclusive education that entails “building upon the uniqueness of each learner and providing a personalized opportunity” has been put forth as an approach that leads to equitable outcomes in education (International Bureau of Education, 2016; United Nations, 2021).

The duration of this paper will take an intricate look into the value of advancing equity on both a national and global level. We will examine the racial and economic educational inequities, gain an understanding of why these inequities exist, and reflect on how these inequities have been addressed. In addition, a comprehensive, research-based E<sup>2</sup>: Equity and Excellence Framework will be introduced that educational institutions can apply to advance equity.

## **Literature Review**

### **The Language of Equity**

To confront the educational inequities that exist, there must be a foundational understanding of what equity truly is. While educational institutions have defined equity in numerous ways, there are two consistent components, fairness and inclusion (Asia Society, 2014; The Annie E. Casey Foundation, 2014; Portland Public Schools, 2021; Colorado State University, 2021). This suggests that educational institutions need to assess their policies, practices, resources, curriculum and services for fairness and inclusiveness. When it comes to educational equity, the Organisation for Economic Co-operation and Development (OECD) states that “equitable education systems are fair and inclusive and support their students in reaching their learning potential without either formally or informally erecting barriers or lowering expectations” (Asia Society, 2014). Other definitions of educational equity focus on disaggregating data by identity to identify and narrow gaps that may exist, while also having high expectations (Great Lakes Equity Center, 2016; Portland Public Schools, 2021). For purposes of this paper, educational equity includes ensuring students have meaningful access to educational opportunities, are meaningfully represented within the structures that exist in educational institutions, can meaningfully participate in their educational experiences, and have outcomes that prepare them to contribute in a positive way to the global world; and is defined as an environment in which:

when educational policies, practices, interactions, and resources, are representative of, constructed by, and responsive to all people such that each individual has access to, can participate, and make progress in high-quality learning experiences that empower them towards self-determination and reduces disparities in outcomes regardless of individual characteristics and cultural identities (Great Lakes Equity Center, 2016).

To achieve educational equity requires that institutions begin to apply an equity lens when examining and implementing such policies, practices, interactions, and resources. Through an equity lens, educational institutions can impact their systems and structures by ensuring that “no learner is denied the fair and equitable benefit of a quality, sound educational experience afforded to all students regardless of race, gender, national origin, language, economic level and special need” (ECCBN, 2016).

While there are an array of equity lenses that have been utilized by educational institutions, many have focal questions that prompt reflection on the respective policy/practice/interaction/resource; asking how learners are affected by group, asking what the data says, disaggregated by group, and ultimately asking how proposed actions address barriers, and impact change that leads to more equitable outcomes. Educational institutions to advance equity have applied the equity lenses (Table 1).

*Table 1. Equity Lenses*

How does this (practice or activity) impact all learners, including specific groups of learners?	Describe the proposed action, desired results and outcomes, and connection to PPS' Vision
What might create a negative or adverse impact on any identifiable population?	How have you intentionally involved external stakeholders who are also members of the communities affected by this policy, program, practice or decision?
How might that adverse impact be avoided?	How does the proposed action expand opportunities for racial equity and social justice?
What precautions should be taken as a district (campus/school, program) moves forward?	How does the proposed action disrupt barriers to equitable outcome?
How should implementation be monitored regarding comparable outcomes for all students and specific student groups?	Upon what information/data are you basing your decision or action?
How must policies, practices and processes be changed to produce fair and equitable outcomes for all students and specific groups of students and their families?	Describe any changes you have made or will make to the action after applying this lens.

Source: ECCBN, 2016; Portland Public Schools, 2021.

To effectively apply an equity-lens, one must develop equity-mindedness, which is “the outlook, perspective, or mode of thinking exhibited by practitioners and others who call attention to patterns of inequity in student outcomes, and are willing to assume personal and institutional responsibility for the elimination of inequity” (Center for Urban Education, 2021). This allows one to examine data in a disaggregated manner, with diminished bias, focused on centering the voices of those who have been historically marginalized, specifically students of color and low-income students. The Center for Urban Education (2021) suggests that to develop equity-mindedness, a cognitive shift needs to occur, from not looking at marginalized groups in a deficit-minded manner, but rather in one that is equity-focused, where we don’t blame students for educational inequities, but rather the educational system”. “Equity-mindedness is a way of understanding and addressing social inequities that challenges the rhetorical and enacted blame of inequities in access, opportunity, and outcomes on students’ social, cultural, and educational backgrounds; rather, equity-mindedness frames racial inequity as a dysfunction of higher education’s policies and practices” (Center for Urban Education, 2021). Those who have developed their equity-mindedness use the mindset to engage in systemic change that ultimately advances equity by possessing the following:

1. Willingness to look at student outcomes and disparities at all educational levels disaggregated by race and ethnicity as well as socioeconomic status.
2. Recognition that individual students are not responsible for the unequal outcomes of groups that have historically experienced discrimination and marginalization in the United States.
3. Respect for the aspirations and struggles of students who are not well served by the current educational system.
4. Belief in the fairness of allocating additional college and community resources to students who have greater needs due to the systemic shortcomings of our educational system in providing for them.
5. Recognition that the elimination of entrenched biases, stereotypes, and discrimination in institutions of higher education requires intentional critical deconstruction of structures, policies, practices, norms, and values assumed to be race neutral (Association of American Colleges and Universities, 2015).

### **Educational Inequities**

In order to advance equity, one must first understand the inequities that exist by group. According to the Association of American Colleges and Universities (2015), deep, persistent, and unacceptable inequities in education begin in pre-K and continue through higher education. Such inequities exist along economic, racial, and ethnic lines, disproportionately and negatively impacting students of color and low-income students (American Psychological Association, n.d.; Plucker, Hardesty, & Burroughs, 2013; Association of American Colleges and Universities, 2015; ECCBN, 2016; Nations Report Card, 2019; National Center for Education Statistics, 2019). These inequities are evident in a number of areas within the educational system, including:

1. disparities in achievement between white students and students of color;
2. disproportionality in special education referral, identification and placement;
3. high dropout rates for students of color;
4. disproportionate discipline and referrals for students of color;
5. under-enrollment of students of color in higher education; and
6. an array of other issues related to decreased education and life opportunities for students of color, students from lower socio-economic backgrounds, students from immigrant families and students in urban areas (ECCBN, 2016).

Data from the National Assessment of Educational Progress (NAEP), “the largest nationally representative assessment of what students across the United States know and can do”, provides evidence that racial-based inequities exist in mathematics, reading, and science disciplines (Nations Report Card, 2019). Upon examining this data in an equity-minded manner, White and Asian/Pacific Islander students are outperforming their peers in all academic areas, with Asian/Pacific Islander students scoring the highest across all areas as well as fourth, eighth and twelfth grade levels.

Black, Hispanic, and American Indian/Alaskan Native students are underperforming in all academic areas in relation to their peers, with Black students scoring the lowest across the board. There is an approximate thirty to fifty point difference between groups with the highest and lowest scores. This suggests that educational institutions need to apply an equity lens in examining all educational structures that may be contributing to racial inequities, proposing actions to advance equity. In Table 2 is a snapshot of the 2019 NAEP assessments from a racial perspective.

*Table 2. 2019 NAEP Assessments (Math/Reading Scale, 0-500; Science Scale, 0 - 300)*

	4 <sup>th</sup> math	8 <sup>th</sup> math	12 <sup>th</sup> math	4 <sup>th</sup> reading	8 <sup>th</sup> reading	12 <sup>th</sup> reading	4 <sup>th</sup> science	8 <sup>th</sup> science	12 <sup>th</sup> science
White	249	292	159	230	272	295	163	165	161
Black	224	260	128	204	244	263	130	133	125
Hispanic	231	268	138	209	252	274	138	141	136
Asian/Pacific Islander	260	310	173	237	281	299	166	167	164
American Indian/Alaskan Native	227	262	136	204	248	272	141	144	142
Two or More Races	244	286	157	226	267	295	159	159	156

Source: Nations Report Card, 2019.

The NAEP data also provides evidence of socioeconomic-rooted academic inequities across math, reading, and science disciplines (Nations Report Card, 2019). Students of a higher socioeconomic status, who do not qualify for the National Student Lunch Program (NSLP), have outperformed their peers in math, reading, and science, across fourth, eighth, and twelfth grades. Those of a lower socioeconomic status who do qualify for the NSLP are scoring on average twenty to thirty points lower than their peers. This suggests that educational institutions need to apply an equity lens in examining all educational structures that may be contributing to economic-rooted inequities, proposing actions to advance equity. In Table 3 is a snapshot of the 2019 NAEP assessments from a socio-economic perspective.

*Table 3. 2019 NAEP Assessments (Math/Reading Scale, 0-500; Science Scale, 0 - 300)*

	4 <sup>th</sup> math	8 <sup>th</sup> math	12 <sup>th</sup> math	4 <sup>th</sup> read	8 <sup>th</sup> read	12 <sup>th</sup> read	4 <sup>th</sup> science	8 <sup>th</sup> science	12 <sup>th</sup> science
NSLP Eligible	229	266	136	207	250	271	137	140	135
NSLP Not Eligible	253	296	160	235	275	294	266	166	160

Source: Nations Report Card 2019.

June Rimmer, Associate Director of the Center for Educational Leadership at the University of Washington says, *I have seen many students of color and those living in poverty survive and even thrive in our public schools. But I have seen far too many*

*who did not survive our school systems and instead, fell onto pathways of limited- or under-employment, poverty and even more destructive lifestyles of drugs, crime and incarceration* (ECCBN, 2016). There is an indirect relationship with those who fall into these lifestyles and those who drop out of high school. Data from the 2016 National Center for Education Statistics indicates there are racial and economic inequities related to those who do not complete high school (2018 & 2019). American Indian/Alaskan Native (11%), Black (7%), Hispanic (9.1%), and Pacific Islander (6.9%) students have higher dropout rates than their White (4.5%) and Asian (2%) peers, with American Indian/Alaskan Natives having the highest rate (National Center for Education Statistics, 2019). The data further shows that students from lower socioeconomic backgrounds have a higher high school dropout rate than their peers from higher socioeconomic backgrounds. Students in the lowest economic quartile have the highest dropout rate of 9.7 percent, followed by those in the middle-low economic quartile who have a dropout rate of 7.3%, while those in the middle-high quartile have a dropout rate of 5.4% and those in the highest quartile have the lowest dropout rate of 2.6% (National Center for Education Statistics, 2018). Applying an equity lens, educational institutions need to propose systemic change that will reduce the dropout rate and advance equity.

There are a number of factors that contribute to these inequities including a lack of “access to such resources as quality pre-school education, the highest quality teachers, maximum amounts of instructional time, enriching life experiences, college preparatory curriculum, engagement with rigorous content and authentic learning that allow students to develop and create meaningful, useful outcomes and the supports essential for student success” (ECCBN, 2016). In fact, the National Academies of Science, Engineering, and Medicine has identified nine indicators of disparities in access to educational opportunities that contribute to these inequities, including:

1. Disparities in students’ exposure to racial, ethnic, and economic segregation
2. Disparities in access to and participation in high-quality pre-K programs
3. Disparities in access to effective teaching
4. Disparities in access to and enrollment in rigorous coursework
5. Disparities in curricular breadth
6. Disparities in access to high-quality academic supports
7. Disparities in school climate
8. Disparities in non-exclusionary discipline practices
9. Disparities in non-academic supports for student success (2019).

Students who attend schools in racially segregated and lower-socioeconomic communities typically have more inexperienced, uncertified, and less skilled teachers (Grove & Montgomery, 2003; ECCBN, 2016). In addition, many of these schools are not providing access to coursework needed to matriculate to be successful in higher education, such as Algebra I/II and laboratory science (Center for Public Education, 2016). Even when access to experienced teachers and rigorous coursework exists, due

to discrimination, implicit/racial bias in the classroom, teacher bias in grading, microaggressions in feedback, and low expectations based on stereotypical perspectives, inequities persist (Macro Learning, 2018). Sometimes these inequities exist just because students are not in the classroom, not out of choice, but due to feeling unsafe in school and/or out-of-school suspensions. Students have reported being threatened or injured with a weapon, gang presence, and fear of attack as safety concerns, impacting Pacific Islander, Black, and Hispanic students at greater rates (National Center for Education Statistics, 2019). Due to racial discrimination and bias in discipline affairs, “African American, Latino and Native American students, in particular, are far more likely to be suspended, expelled, and arrested than their white peers, even when accused of similar behavior” (Center for Public Education, 2016).

Due to these contributing factors, along with others, educational inequities continue to persist even at the collegiate level. There are fewer students of color who are academically prepared for higher education, with many having to enroll in non-credit college development courses which delays their matriculation through and completion of college, as well as diminishes their financial aid (Association of American Colleges and Universities, 2015). Once fully enrolled, the lack of access for Black and Latino students to various collegiate experiences such as research opportunities, internships, study abroad, and capstone course, contribute to further educational inequity, as evident in Table 4.

*Table 4. Inequities in Educational Opportunities in College*

	<b>Asian</b>	<b>Black</b>	<b>Latino</b>	<b>White</b>
Undergraduate Research	25%	17%	19%	24%
Internship or Field Experience	46%	40%	41%	51%
Study Abroad	12%	8%	10%	13%
Capstone Experience	42%	38%	36%	47%

*Source:* Association of American Colleges and Universities, 2015.

This affects their future education and work, as these opportunities develop analytical, problem-solving, and critical thinking skills (Association of American Colleges and Universities, 2015). There are also inequities in terms of higher education completion. “In 2013, individuals from high-income families were eight times more likely to earn a bachelor’s degree by age twenty-four than were those from low-income families” (Association of American Colleges and Universities, 2015). In addition, only 21% of Black, 17% of American Indian/Alaskan Native, and 15% of Hispanic students attain higher education degrees, compared to 35% of White and 51% of their Asian peers (Association of American Colleges and Universities, 2015).

### **From Equality to Equity: A Historical Perspective**

For nearly seventy years, the United States has been actively working to improve the state of education. Initially, beginning in 1954, the focus of such efforts was on equality, providing students with the same resources, opportunities, and supports

(Center for Public Education, 2016; Jurando de los Santos, Morento-Guerrero, Marin-Marin, & Costa, 2020). “Equality is about sameness; it focuses on making sure everyone gets the same thing” (Association of American Colleges and Universities, 2015). Even though the first mention of equity in professional literature occurred in 1948, it was approximately thirty-five years into the national focus on educational improvement that the notion of equity emerged in a 1983 national plan. However, it was not until seventeen years later, in 1990, that the focus truly shifted towards advancing equity on a state and national, with a focus on identifying and addressing inequities. In Table 5 is a historical snapshot of a national focus on educational improvement, from equality to equity.

*Table 5. History of Education Improvement from Equality to Equity*

<b>Generation/Years</b>	<b>Focus</b>	<b>Actions</b>	<b>Goals</b>
First Generation: 1954-1964	Equality Litigation	Brown v. Board of Education	Racial, physical desegregation.
Second Generation: 1964-1983	Equality Legislation	Civil Rights Act of 1964	Prohibited discrimination against children and opened access for them to schools and programs within those schools, regardless of race, sex, national origin, religion, economic status or disability.
Third Generation: 1983-1990	Equality to Equity	A Nation at Risk  In Pursuit of Equity	Focused on the elimination of re-segregation in schools and classrooms, the elimination of achievement disparities among identifiably different students and the production of comparable outcomes in school performance.
Fourth Generation: 1990-2000	Equity	National Governors Meeting on Education	To create new schools that work for diverse students, produce world-class students with world-class skills and to create new paradigms for civil rights and equity-based excellence.
Fifth Generation: 2001-2011	Equity	No Child Left Behind Act	Systemic equity, defined as the transformed ways in which systems and individuals habitually operate to ensure that every learner had the greatest opportunity to learn, enhanced by the resources and supports necessary to achieve competence, excellence, independence, responsibility and self-sufficiency for school and for life.
Sixth Generation: 2012-Beyond	Equity	Blueprint for Reform	Challenging public schools to be more focused on rigorous curriculum presented by highly qualified, effective teachers under the supervision of dynamic principal leadership.

Source: ECCBN, 2016.

## **Educational Equity from a Global Perspective**

There is a similar history of a philosophical shift from equality to equity on the global level. Article Six of the 1948 Universal Declaration of Human Rights (Article 26) discusses education as an inherent right. “Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages” (UNICEF, 2015). Today, the United Nations (2021) has put forth Sustainable Development Goal #4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. This goal was put forth to address the inequities that exist on a global scale. Data from 2019 reports that 85% of students around the world completed primary education, while only 53% completed secondary education (United Nations, 2021). In fact, there are 58 million children out of school globally and around 100 million children who do not complete primary education (Ainscow, 2016; International Bureau of Education, 2016).

Many of these students yield from poorer countries and/or lower socioeconomic backgrounds. “The world’s poorest children are four times more likely not to go to school than the world’s richest children, and five times more likely not to complete primary school” (United Nations, 2015). In fact, children from poorer countries are about one year behind in mathematics and three to four times more likely to underperform in math assessments (OECD, 2008; Asia Society, 2014). Furthermore, these students tend to struggle with reading and writing, are twice as likely to underperform academically and never develop basic life skills (OECD, 2008; UNICEF, 2015; United Nations, 2021). “Even in wealthier countries, many young people leave school without worthwhile qualifications, some are placed in various forms of special provision away from mainstream educational experiences, and others simply choose to drop out since the lessons seem irrelevant to their lives” (International Bureau of Education, 2016). COVID-19 has further exacerbated these educational inequities, as 101 million or 9% of children in first through eighth grades fell below minimum proficiency levels in 2020 (United Nations, 2021). In addition, 65% of lower income countries and 35 percent of higher income countries reduced educational funding (United Nations, 2021).

Many of these educational inequities exist because of students living in “conflict-afflicted regions and emergency situations”, which prevent them from attending school (UNICEF, 2015). Others face racism, genderism, xenophobia, ableism, and language injustice, which contribute to the perpetuation of educational inequities (UNICEF, 2015). In addition, some of the poorer countries lack the infrastructure to host school in a physical space, with limited or no access to drinking water, electricity, and handwashing facilities (United Nations, 2021). To address these global educational inequities, research suggest equitable resource distribution, building capacity of educators to be equity-minded, and the application of an equity lens to modify and develop policies to advance equity, as well as a system of accountability (Asia Society, 2014).

Since “the highest performing education systems across OECD countries are those that combine quality with equity”, there is a global challenge to review educational policies (OECD, 2008). These questions should be reflected on in said review process:

1. Is there a common understanding that equity (inclusion and fairness) should be seen as a principle that guides all education policies?
2. Where are the areas of strength within the national education system that can be built on?
3. What are the levers for change that can be used to move thinking and practice forward?
4. What are the barriers to progress and how can these be addressed (Ainscow, 2016)?

In direct response to the United Nations Sustainable Development Goal #4, to ensure that inclusive and equitable quality education, the concept of inclusive education has been promoted. Inclusive education suggests that we have a moral responsibility to ensure students who are victims of educational inequity are able to fully participate within the educational process, and includes outcomes related to cultural belonging, high expectations, inclusive classrooms, academic supports, unbiased discipline practices, student advocacy, and equitable assessments (International Bureau of Education, 2016).

### **Advancing Equity Approaches**

While thus far there has been a focus on equity within the context of education, advancing equity has become a goal for other types of organizations, including government, law enforcement, non-profits, social-service, and civic groups, to name just a few. Some of the approaches are focused on all identity-based equitable outcomes, while others are specific to advancing racial equity. Common components of all approaches include defining and/or developing awareness of equity, data collection and utilization of disaggregated data to identify inequities, implementing targeted strategies to address inequities, and having a system accountability and/or process of measuring the advancement of equity (The Annie E. Casey Foundation, 2014; ECCBN, 2016; Equity in the Center, 2018; Equity Literacy Institute, 2021; NADOHE, 2021). Some unique, but valuable aspects of these various approaches that should be considered to advance equity include: (a) the Direct Confront Principle, (b) an examination of institutional commitment and capacity to make equity-minded, data informed decisions, (c) a comprehensive understanding of the root causes of inequities, as well the (d) #FixInjusticeNotKids Principle (The Annie E. Casey Foundation, 2014; ECCBN, 2016; Equity in the Center, 2018; Equity Literacy Institute, 2021; NADOHE, 2021). To advance equity, institutions must be willing to directly confront inequities that emerge, and not avoid them. They must understand the readiness and

build the capacity of their organization to engage in an equity-minded process that advances equity. In addition, they should understand the underlying causes as systemic in nature, and not attribute them to the behaviors and attitudes of individuals who have historically been marginalized.

To advance equity within the context of education, there needs to be a multifaceted approach. One study that examined educational programs that positively impacted racially minoritized students stated; “no magic bullet was found, that is, no one strategy is common to all programs that have good findings” (Grove & Montgomery, 2003). The components of these programs that contributed to advancing equity include a system of accountability, academically rigorous curriculum, equity-minded professional learning, family and community engagement in the academic process, smaller classrooms, as well as personalized academic, social-emotional supports and financial supports (Grove & Montgomery, 2003). The research also suggests that to understand the inequities, a comprehensive data collection process must be conducted that incorporates an array of constructs to measure, including academic performance disaggregated by race, teacher credentials, availability of advanced and rigorous coursework, access to assistive supports, school climate, and discipline records (Center for Public Education, 2016; The National Academies of Sciences, Engineering, Medicine, 2019).

### Methodology

The Illinois Mathematics and Science Academy (IMSA), a residential high school for advanced learners, sought to address internal educational inequities and advance, as well as institutionalize equity and excellence. Thus, the research question was *how does the Illinois Mathematics and Science Academy shift from a focus on diversity and equality to one of equity and excellence?* IMSA engaged in a process of participatory action research (PAR), an approach to inquiry that “involves researchers and participants working together to understand a problematic situation and change it for the better” (Institute of Development Studies, n.d.). This process focuses on social change that challenges inequity, and includes an iterative cycle of (a) planning/research, theoretical perspectives/understanding research problem; (b) action, collaborative involvement in addressing problem; and (c) reflection, findings, analysis, and conclusions (Institute of Development Studies, n.d.; Rose, Spinks, & Canhoto, 2015). The ultimate purpose of IMSA’s study was: to develop an equity and excellence pathway to advance educational equity, rooted in Theory of Change, informed by data, and facilitated through an inclusive, equity-minded frame.

During the PAR planning/research aspect, the researchers engaged in a comprehensive review of the literature related to equity, equity lens, equity-mindedness, evolution of equality to equity, educational inequities, excellence, inclusive excellence, and organizational change. Based on the professional diversity, equity, and inclusion expertise of the researchers, their understanding of organizational

change, and the analysis of the literature review, a framework was developed, the pathway taken by IMSA to shift towards educational equity. The researchers theorized that the following seven equity pathway steps would assist IMSA in shifting from diversity and inclusion towards equity and excellence:

1. Educational Equity Impact Case
2. Equity and Excellence Policy
3. Equity-mindedness Capacity Building
4. Equity-minded Data Collection
5. Equity-minded Data Meaning-Making
6. Equity and Excellence Plan
7. Equity and Excellence Scorecard

Each of these equity pathway steps build upon, and inform one another, with the central outcome as equity and excellence, defined by Illinois Mathematics and Science Academy (2018) as:

1. Equity is access for culturally, linguistically and economically diverse and marginalized students to differentiated academic and social-emotional supports and interventions that create opportunity for them to participate in educational programs and co-curricular activities that are capable of closing the excellence gaps in student experiences, success and retention. Additionally, with respect to the Academy's workforce, equity means differentiated strategies and resources to attract, retain and professionally develop culturally, linguistically and economically diverse and marginalized applicants and employees.
2. Excellence is the expectation and standard that whatever the Academy does in teaching and learning, research, innovation, student and workforce development, institutional functioning, and participation in local and global communities, is of the highest quality, is on the cutting edge, rigorous, nourishes critical and creative thinking, is responsive to stakeholders and advances equity (Illinois Mathematics and Science Academy, 2018) .

During the PAR action aspect, an equity-minded frame, was applied during the facilitation of capacity building, and creation of the impact case, policy, and plan, as well as in the data collection process. The PAR reflection aspect was applied during the data meaning-making and scorecard development.

## Results

### E<sup>2</sup>: Equity and Excellence Framework

Soul food didn't come from emulating White cooks; Jazz, rock-n-roll, and hip hop didn't come from emulating White musicians; and good Black stats won't come from emulating White scholars. I cook my research in a rusty pot, with lots of spice, and serve it ostentatiously on two turntables and a mixer. You can acquire a taste for my tone, or let it offend your sensibilities. I'mma be steadfast with my hustle until they start emulating me (Todson, 2019).

The E<sup>2</sup>: Equity and Excellence Framework is a comprehensive, research-informed, equity-minded, inclusive pathway towards advancing educational equity that centers the voices of historically marginalized groups. It's a culturally responsive, student-centered approach designed by Black scholars to advance educational and racial equity, as well as STEM (science, technology, engineering, and mathematics) equity. Rooted in equity-mindedness and considering the current state of inequities that exist in education, the research presented throughout this paper, as well as the STEM and advancing humanity context of the Illinois Mathematics and Science Academy (IMSA), the E<sup>2</sup>: Equity and Excellence Framework was developed, depicted in Figure 1.

Figure 1. E<sup>2</sup>: Equity and Excellence Framework

Educational Equity Impact Case	The Value of Equity and Excellence
Equity and Excellence Policy	The Outcome of Equity and Excellence
Equity-mindedness Capacity Building	The Embracing of Equity and Excellence
Equity-mindedness Data Collection	The Truth of Equity and Excellence
Equity-mindedness Data Meaning-Making	The Inclusiveness of Equity and Excellence
Equity and Excellence Plan	The Heart and Soul of Equity and Excellence
Equity and Excellence Scorecard	The Impact and Future of Equity and Excellence

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The duration of the results section will further define each of the equity pathway steps of the E<sup>2</sup>: Equity and Excellence Framework, share IMSA's application of the framework, including a discussion of the Scorecard data.

## **Education Equity Impact Case**

The education equity impact case discusses the value-add of focusing on equity within the context of an educational institution. In general, education is integral to reducing poverty, improved health, economic growth, conflict reduction, and overall human development (Association of American Colleges and Universities, 2015; UNICEF, 2015). With a focus on educational equity, all students, especially those from historically marginalized communities, will have “an opportunity to survive, develop and reach their full potential, without discrimination, bias or favoritism” (UNICEF, 2015). Thus, discussing the value of a focus on educational equity will assist those working in the educational system in becoming vested in equity work, as they will see the value-add. It will also assist those who may be resistant to better understand equity and how it can lead to improved educational outcomes.

IMSA focused its educational equity impact case on the value-add of equity in four areas: teaching and learning, higher education alignment, advancing STEM, and global impact. These focal areas are aspects of IMSA’s mission, beliefs, vision, and/or impacts and outcomes statement. Regarding teaching and learning, IMSA utilizes the Danielson Framework as a guide. According to this framework, teachers strive for excellence, but “a commitment to excellence is not complete without a commitment to equity”; and thus, the educational equity impact case discussed how IMSA could be intentional and strategic in applying it as designed, with equity at the heart of it (The Danielson Group, 2019; Ellis & Coleman, 2020). While IMSA is an institution of secondary education, it is situated under the Illinois Board of Higher Education. Considering this, IMSA’s educational equity impact case discussed alignment with trends within higher education of inclusive excellence, diverse representation, culturally responsive pedagogy, and intercultural communication, all elements that advance equity (Ellis & Coleman, 2020). As part of IMSA’s mission is “to advance the human condition”, the United Nations Sustainable Development goals have recently been integrated into the curriculum as problems to solve through an approach of inquiry; the educational equity impact case discussed how a focus on equity can impact the global world by assisting in the achievement of goal #4, to ensure inclusive and equitable quality education (Ellis & Coleman, 2020; United Nations, 2021). Given that IMSA has a legislative charge to advance STEM education, the educational equity impact case further discussed how a focus on equity within STEM could help to diversify the field, and assist the United States with maintaining their status as a global leader (Ellis & Coleman, 2020).

This educational equity impact case was built to discuss how a focus on equity leads to continuous educational improvement with outcomes that are more equitable. This served as the foundation for IMSA to institutionalize equity work by creating shared understanding of what equity is and getting individuals vested by discussing the positive impact it will have on the organization and education. Ultimately, the educational equity impact case justifies and provides a research-based rationale for the time, resources, and commitment needed to advance educational equity.

## Equity and Excellence Policy

The Equity and Excellence Policy shares the outcomes that will occur with a focus on equity, along with excellence. The focus on excellence aligns with both the Danielson Framework and Higher Education's focus on inclusive excellence, as well as serves as a response to those who may assume that to advance educational equity means to lower expectations. This focus on both equity and excellence "combines high levels of student performance with an equitable distribution of learning opportunities" (Asia Society, 2014). Having a leadership approved Equity and Excellence Policy sends the message that the educational institution is taking this work seriously, is accountable for producing equitable educational outcomes, and will monitor its progress (Bauman et al., 2005). In addition, an approved policy ensures the sustainability of equity and excellence, especially during leadership changes, as well as embeds this work into the fabric of the educational institution (ECCBN, 2016).

IMSA applied the framework of inclusive excellence and the Theory of Change, "a predictive assumption about the relationship between desired changes and the actions that may produce those changes", as part of the Equity and Excellence Policy development process (Ellis & Coleman, 2020). The first step of this process was to define both equity and excellence within IMSA's context as a STEM school focused on advancing the human condition (IMSA, 2018). From there, the long-term outcome, along with seven intermediate outcomes were established. The intermediate outcomes were designed to lead to the achievement of the long-term outcome, which serves as "the intended impact on the world and how IMSA will be different because of equity and excellence" (IMSA, 2018). For IMSA, the long-term outcome is as follows:

We are committed to advancing equity in STEM education and representation and creating a diverse, inclusive community of global citizens who can realize their full potential, and execute our mission to advance the human condition, through a model of Equity and Excellence (IMSA, 2018).

IMSA's intermediate outcomes are as follows:

1. Providing professional learning that continuously develops the Cultural Competence and equity awareness of staff, including faculty, as well as board members and external partners.
2. Implementing strategies based on the Equity and Excellence Model to recruit, support and retain staff, including faculty, as well as board members and external partners.
3. Differentiating resources as necessary to provide every student with access to Culturally Competent pedagogy, curriculum, co-curriculum, support, facilities and other educational resources with an ultimate goal of achieving Excellence.

4. Supporting research, scholarship and innovative expression of staff, including faculty as well as external partners that either address or promote the Equity and Excellence Model.
5. Developing and using an equity lens when considering major policies, programs, practices, or decisions in order to realize more equitable outcomes.
6. Addressing Culturally, Linguistically and Economically Diverse and gender-based STEM education/career gaps by developing student and professional programs and services, as well as conducting research, that will inform strengthening and diversifying the STEM education to career pipeline.
7. Implementing strategies to recruit, support and retain Culturally, Linguistically and Economically Diverse groups and support and retain Marginalized groups (IMSA, 2018).

The final element of the Equity and Excellence Policy development process included defining the model of Equity and Excellence; cultural competence, diversity, equity, equity-minded frame, excellence, and inclusion, within IMSA's context to create shared meaning. Throughout the Equity and Excellence Policy process development, feedback from students and staff, including faculty, was gathered and considered.

This policy was developed to institutionalize and prioritize equity and excellence in a sustainable manner. This ensured the development of a theory-based, equity-minded policy that is inclusive of the voices within IMSA, centering those from historically marginalized groups. In addition, the policy was tailored to advance equity in alignment with the strategic direction of IMSA.

### **Equity-mindedness Capacity Building**

Equity-mindedness Capacity Building is the pathway each individual is on towards embracing equity and excellence. It is the process of preparing an educational institution to operationalize the Equity and Excellence Policy. Equity leaders say, "equity-centered capacity building is a complex process coupling both structural and technical processes with those that are more social, cultural and political", and includes these six essential elements:

1. Equity-Focused Content
2. Opportunity for Self-Reflection
3. Communities of Practice
4. Job-Embedded Learning
5. Differentiated Support for Principals
6. The Use of Inquiry (ECCBN, 2016)

With an understanding of equity and its complexity, as well as skill development, ideally individuals will begin to embrace the work involved with advancing educational equity and be prepared to collect and make meaning of data in an equity-minded manner. The United States Department of Education Office of Elementary and Secondary Education actually provides funding to ten equity assistance centers that provide equity-minded capacity building professional learning to educational institutions, and should be considered as a possible resource (ECCBN, 2016).

IMSA partnered with such a center, the Midwest and Plains Equity Assistance Center (MAP), currently known as the Great Lakes Equity Center, to provide equity-minded professional learning, as well as to guide the equity-minded data collection and meaning-making processes. This partnership was beneficial to IMSA, providing the knowledge, skills, and tools to apply the E<sup>2</sup>: Equity and Excellence Framework, described below:

We engage in sustained partnerships of transformative professional learning and improvement grounded in examination of local data and historical contexts and action-research case studies that bring practitioners and researchers together in inquiry (Great Lakes Equity Center, 2021).

The equity-minded professional learning included a three-part series for all IMSA employees that allowed for self-reflection, shared equitable practices, and discussed equity-mindedness in relation to IMSA's Educational Equity Impact Case and Equity and Excellence Policy, evident in their titles below:

1. Critical Reflection to Critical Action: Leadership Practices for Advancing Educational Equity
2. Critical Consciousness: Moving Beyond Critical Reflection to Critical Action
3. Critical Reflection to Critical Action: Planning to Operationalize the IMSA Equity and Excellence Model & Policy

IMSA representatives attended other related sessions offered by the MAP Center, designed for board members, principals, faculty, and equity practitioners. This Equity-Mindedness Capacity Building equipped IMSA with the knowledge, skills, and research-informed practices to ultimately embrace and advance equity and excellence.

### **Equity-Minded Data Collection**

To advance educational equity, institutions must discover the truth of equity and excellence by first identifying the inequities that exist. As previously discussed, the examination of an array of educational data constructs through an equity-minded lens, disaggregated by race, ethnicity, socioeconomic status, along with other identity groups, is an integral part of equity approaches. Considering this, IMSA engaged in a

comprehensive, equity-minded process that engaged the community in the actual collection of the data.

Continuing the application of the Theory of Change, IMSA implemented a two-phase process that entailed:

1. Phase 1 included extracting the long-term/intermediate outcomes from the Equity and Excellence Policy, drafting a rationale focused on the value of equity and excellence in relation to the Equity and Excellence Policy outcomes, and implementing a data collection process to identify assumptions, preconditions and strategies.
2. Phase 2 included having modified focus groups with IMSA departments, teams, and leadership/cultural student groups to inform them of IMSA's progress and approach to the development of the Equity and Excellence plan, address Equity and Excellence policy questions, rank/prioritize assumptions, preconditions and strategies, and discuss additional department/role-specific strategies (Ellis & Coleman, 2020).

This process allowed IMSA to better understand the current state of educational equity within the context of the outcomes discussed in the Equity and Excellence Policy. Furthermore, it proposed strategies that could be potentially included in the development of the equity and excellence plan.

In addition, IMSA implemented the MAP Center's, Equity Context Analysis Process (ECAP), a comprehensive tools and data collection and analysis process that centers the assessment of equitable practices, is organized around seven equity indicators, and engages multiple stakeholders in the coordination, collection and interpretation of data (2020). IMSA convened a sixty-two member team that included representatives from leadership, faculty, staff, students, parents, and three external reviewers. To center the voices of historically marginalized communities, IMSA was intentional about having Black and Latino representation, especially among the students, parents, and external reviewers. This team went through two equity-minded professional learnings to understand and build their capacity to implement the ECAP. The ECAP process examined seven equity indicators: climate, environment and resources, leadership and governance, continuous improvement and inquiry, instruction and assessment, student engagement and outcomes, and family and community partnerships. The following data collection activities occurred during this process:

- ECAP Climate Surveys to better understand the diversity and inclusion climate from the perspective of students, administrators, staff, including faculty, and parents.
- Classroom Observations focused on equity-minded assessment of relationship rigor, safety, inclusion, responsiveness, curriculum instruction, instructional praxis and academic growth.

- Faculty Interviews focused on equity-minded assessment of educational equity elements of being student-centered and cultural responsiveness.
- IMSA Building Walk-Through focused on assessment of building climate, historical and current events displayed, relationships, inclusion and safety/security.
- IMSA Internal data that included course enrollment, discipline, co-curricular/organization involvement and demographic data by race, socio-economic status, geographic location, and biological sex (Ellis & Coleman, 2020).

Through this equity-minded process, IMSA was able to discover the truth of equity and excellence by collecting evidence of equitable practices, as well as educational inequities in a disaggregated manner. Below is a snapshot of the equity-minded data collection responses (Table 6).

*Table 6. Equity-minded Data Collection Responses*

<i>Equity-minded Data</i>	<i># of responses</i>
<i>Theory of Change Survey – Phase 1</i>	119
<i>Theory of Change Survey – Phase 2</i>	114 respondents from 15 departments/3 teams & 99 students
<i>ECAP Parent Survey</i>	131
<i>ECAP Administration Survey</i>	8
<i>ECAP Faculty/Staff Survey</i>	69
<i>ECAP Faculty Interviews</i>	24
<i>ECAP Classroom Observations</i>	43
<i>ECAP Building Walk-Through</i>	24 individuals conducted 155 observations of 39 physical spaces (main building, residence halls, external areas)
<i>IMSA Fall 2019 Course Enrollment Data (by race, sex, socioeconomic status and geographic location)</i>	21 Math and Science Courses
<i>IMSA Student Diversity Climate Survey</i>	4 years of data, average response rate = 526/650

Source: Coleman & Ellis, 2020.

This multi-faceted Equity-Minded data collection process provided IMSA with the information to better understand the current state of equity and excellence.

### **Equity-Minded Data Meaning-Making**

The Equity-Minded Data Meaning-Making is a process of inclusiveness in which the equity and excellence team analyzes and interprets the summarized ECAP data (Ellis & Coleman, 2020). This allows for multiple, equity-minded, diverse perspectives related to what the data is actually saying. IMSA's Equity and Excellence team approached this equity-minded meaning-making session by triangulating the data sources, and through a process of co-interpretation. Considering the summarized data from multiple sources and perspectives including student, stakeholder, and school

data, validity of the data was established (Great Lakes Equity Center, 2019; 2020a; 2020b). From there, the Equity and Excellence team engaged in co-interpretation of the data, a process of determining through an equity-minded and identity frame, what the data truly means. Next, a summative determination was made about the extent to which each of the equity indicators was evidenced, and of which environment and resources, leadership and governance, and instruction and assessment emerged. See Appendix A for meaning-making session data (rationale) that ultimately informed the Equity and Excellence Plan

### **Equity and Excellence Plan**

The Equity and Excellence Plan Development is the heart and soul of the E<sup>2</sup>: Equity and Excellence Framework, as it provides specific strategies and interventions that assist in operationalizing the Equity and Excellence Policy, is informed by the Equity-minded data collection and meaning-making processes, and designed to advance equity and excellence, and achievement of the long-term policy outcome. For IMSA, the Equity and Excellence Plan was situated within the operational dashboard, aligning each immediate policy outcome with an IMSA pillar. Those immediate policy outcomes were then related to the prioritized equity indicators that emerged during the meaning-making process. Utilizing the Theory of Change and ECAP data, as well as considering the meaning-making sessions, IMSA developed a rationale, sharing the inequities that emerged related to each immediate outcome. In response to the rationale, specific strategies were created to advance equity and excellence as well as achieve each immediate outcome, and ultimately the long-term outcome. For each immediate outcome, assessments were identified as tools to measure progress. As equity and excellence is the collective responsibility of all in an educational institution, IMSA added the departments'/teams' accountable for each of the strategies and related interventions. See Appendix A for IMSA's full Equity and Excellence Plan, which shares IMSA's long-term outcome, intermediate outcomes, situated within IMSA's context (i.e., pillars and priority outcomes), meaning-making data that informed the plan development, strategies, instruments to measure progress, as well as accountable parties for implementation.

### **Equity and Excellence Scorecard**

The Equity and Excellence Scorecard dictates the impact of equity and excellence, as it measures progress in advancing educational equity, helping to inform interventions, and future plans. Both the Diversity Scorecard and the Equity Scorecard™ are action-oriented data tools and inquiry processes that inform change and allows educational institutions to establish indicators and assessments that measures the progress in advancing educational equity (Bauman et al., 2005; USC Center for Urban Education, n.d.). Applying elements of each of these scorecard processes, IMSA developed its Equity and Excellence Scorecard, inclusive of six assessments that align with the

immediate outcomes and measure their progress. These reliable and valid instruments that invoke action include the following:

- Intercultural Development Inventory<sup>®</sup> (IDI), assesses intercultural competence – the capability to shift cultural perspective and appropriately adapt behavior to cultural differences and commonalities.
- Trauma Responsive School Implementation Assessment, an evidence-informed self-assessment tool that can be used to identify strong trauma responsive programming and policy domains, as well as domains that have greater room for improvement.
- Student Diversity Climate Survey, collects information about students' experiences at IMSA related to discrimination, biased language, and availability and accessibility of supportive resources.
- STEM Education Equity Analysis Tool, a self-assessment instrument that fosters an opportunity to critically reflect on current school policies and practices.
- STEM Equity Program Evaluation Rubric, designed to help program administrators, designers, implementers, and funders identify the critical attributes of a STEM program to determine the degree to which it is inclusive and supports access and success for students who historically have not engaged in STEM.
- Institutional Model for Increasing Diversity and Self-Assessment Tool, evaluates the actions taken to effectively hire, retain, and support the success of underrepresented faculty in STEM. (Coleman, Ellis, & Anderson, 2021).

The assessments were administered during year one of the Equity and Excellence Plan, to establish baseline data, and will be re-administered during year three to measure progress. The departments/teams responsible for each immediate outcome were provided with the data to inform interventions. Ultimately, this Equity and Excellence Scorecard will determine if IMSA made progress in each of the immediate outcomes and achieved the long-term outcome of advancing STEM equity. Furthermore, it will identify any areas that may still need development, informing future equity and excellence policies and plans. The duration of this section will discuss IMSA's Equity and Excellence Scorecard results, as well as the interventions put in place to advance equity, informed by the data.

Regarding the Intercultural Development Inventory, it uses the Intercultural Development Continuum (IDC<sup>™</sup>) that includes the following orientations: denial (55 – 70), misses difference; polarization (71 – 85), judges difference; minimization (86 – 115), de-emphasizes difference; acceptance (115 – 130), deeply comprehends difference; and adaptation (130 – 145), bridges across difference, to measure cultural competence. According to the voices of 197/204 staff, IMSA is in a space of minimization (97.28) and has put in place strategies to move along the continuum towards acceptance. This suggests that IMSA needs to implement more professional

learning focused on culturally responsive pedagogy and develop cultural competence skills.

In terms of the Student Diversity Climate Survey, it asks students if they feel unsafe on campus due to an array of social identities, including race/ethnicity, religion, gender, expression of gender, socio-economic status, sexual orientation, skin color, and ability level. Based on the perspectives of 551/650 students, it was found that IMSA has 61.2% of students who feel safe on campus related to one or more of their social identity and aspires to increase this to 75%. This data suggests that IMSA needs to put more services in place to support Culturally, Linguistically, and Economically Diverse Students, as well as create a culture of inclusiveness.

Regarding the Trauma Responsive School Implementation Assessment, the scale is as follows: emerging (1.0 – 1.9), progressing (2.0 – 2.9), and mastery (3.0 – 4.0). Inclusive of the voices of 8 trauma team members, IMSA's trauma responsiveness overall score demonstrates progressing (2.04). The individual categorical scores demonstrate emerging in three areas, whole school trauma programming (1.5), classroom strategies (1.6), and staff self-care (1.6); and progressing in five areas, school safety planning (2.4), school prevention planning (2.9), prevention/early intervention programming (2.0), targeted trauma-informed programming (2.4), and family and community engagement (2.1). IMSA's aspiration is to move from emerging to progressing, and from progressing to mastery, in the respective areas. This data suggests that IMSA needs to focus more on being trauma responsive overall, but specifically in the classroom and with staff.

Regarding the STEM Education Equity Analysis Tool, the scale is as follows: beginning (1.0 – 1.9), developing (2.0 – 2.9), and mature (3.0 – 4.0). IMSA's STEM Education Equity overall score demonstrates mature (3.18). The individual categorical scores demonstrate developing in three areas, leadership (2.29), professional learning (2.41), and partnerships (2.40); and mature in 6 areas, staffing (3.13), curriculum and instruction rigor (3.57), culturally responsive curriculum (3.25) and instructional practices (3.55), assessment (3.28), and ongoing engagement (3.26). The intent is to move from developing to mature in the respective areas, and the areas that are already mature, to move closer to a perfect score of 4.0. This data suggests that there is a focus on building IMSA's capacity to advance STEM equity.

Related to the STEM Equity Program Evaluation Rubric, the scale is as follows: developing (1.0 – 1.9), established (2.0 – 2.9), and accomplished (3.0 – 4.0). From the perspective of all 64 academic affairs staff, IMSA's STEM Equity Program overall score demonstrates established (2.80). The individual categorical scores demonstrate established in six areas, equity focus (2.60), capacity (2.77), career connection (2.09), professional development (2.34), leadership (2.94), and community (2.67); and at the accomplished stage for STEM content (3.11) and instruction (3.28). While IMSA is strong in STEM content and instruction, the data suggests there needs to be a focus on equity-mindedness development of staff, collaboration with the community, and an added component to the programs focused on STEM careers.

In terms of the Institutional Model for Increasing Faculty Diversity, it asks 86 institutional context, recruitment, transition, and retention questions, that elicit a yes/no response, with yes being indicative of the practice being in place, and no, indicative that the practice is not in place. Utilizing a consensus decision-making process, all seven staff of IMSA's Human Resources and Principal's offices reflected and responded. This process yielded the following results: 61.5% for institutional context; 0% for recruitment – hiring, 20% for recruitment - outreach, 0% for recruitment – yield; 16.6% for transition; 21% for retention – professional development, .08% for retention – advancement, and 20% for satisfaction/support. This data suggests that IMSA needs to develop targeted, culturally responsive strategies focused on diverse recruitment, transition, and retention.

IMSA received an overall scaled score of 49.99 out of a possible 100. While some may view this as failure, considering the evolution that IMSA is going through and the complexity of institutionalizing equity work, IMSA is half-way there in advancing Equity and Excellence. In addition, it shows that IMSA took an intentional, strategic, equity-minded, data-informed approach to advancing equity and excellence. In Table 7 is a snapshot of IMSA's Equity and Excellence Scorecard quantitative results, actual and scaled, along with aspirational scores, for the Equity and Excellence Policy intermediate outcomes.

*Table 7. Equity and Excellence Scorecard*

IMSA Policy Intermediate Outcome	Assessment	Overall Score	Instrument's Scale		Aspirational Score	IMSA's Scaled Scores (Out of 100)
<b>Professional Learning</b>	Intercultural Development Inventory	97.28 minimization	55	145	115 acceptance	46.978
<b>Student Recruitment, Support, Retention</b>	Student Diversity Climate Survey	61.2% students safe	0	100	75% students safe	61.200
	Trauma Responsive School Implementation Assessment	2.04 progressing	1	4	3.00 mastery	34.667
<b>Differentiation</b>	STEM Education Equity Analysis Tool	3.18 mature	1	4	3.5 mature	72.667
<b>CLED Student STEM Gaps</b>	STEM Equity Program Evaluation Rubric	2.8 established	1	4	3.3 accomplished	60.000
<b>Staff Recruitment, Support, Retention</b>	The Institutional Model for Increasing Faculty Diversity and Self-Assessment Tool	21	0	86	37	24.419

Source: Coleman, Ellis, & Anderson, 2021.

The following interventions were put in place to assist IMSA in obtaining their aspirational scores, advancing equity and excellence (Table 8).

Table 8. E<sup>2</sup>: Equity and Excellence Scorecard Informed Interventions

IMSA Policy Intermediate Outcome	Interventions
<b>Professional Learning</b>	<ul style="list-style-type: none"> <li>✓ Cultural Competence e-Learning course for all staff, developed by the Office of Diversity, Equity, and Inclusion</li> <li>✓ Provide discipline specific equity-mindedness and cultural competence professional learning for faculty.</li> <li>✓ Develop Gender and Sexuality and Bystander Intervention e-learning courses.</li> <li>✓ Develop and implement train-the-trainer social justice curriculum for Residence Life staff.</li> <li>✓ Integrate individual employee Cultural Competence Action Plan into performance goal and evaluation process.</li> </ul>
<b>Student Recruitment, Support, Retention</b>	<ul style="list-style-type: none"> <li>✓ Utilizing the National Science Foundation Indicators of Disparities in Access to Educational Opportunities, develop an access scorecard to be used as part of the admissions review process, as a means to quantify students' lived educational experiences.</li> <li>✓ Create a comprehensive, equity-minded educational program for students that is rooted in social justice and develops cultural competence, with an intentional focus on anti-racist education.</li> <li>✓ Informed by social-emotional focus groups held with Black, Latino and LGBTQIA+ students, implement culturally responsive trauma interventions that are equity-minded and differentiated supports.</li> <li>✓ Implement Racial Equity Task Force Initiatives related to Black/Latino student safety inclusive of Educational Equity/Social Justice living, the Hub with identity development programs, trauma-responsive counseling, cultural experiences, and tutoring/mentoring services.</li> <li>✓ Implement Gender Inclusivity Project, including gender support plan, pronoun practice/policy, and the development of gender inclusive living.</li> </ul>
<b>Differentiation</b>	<ul style="list-style-type: none"> <li>✓ Rejuvenate mathematics problem sets to be culturally relevant and utilizing reality pedagogy, a form of Culturally Responsive Pedagogy, coach the Mathematics faculty on application of respective techniques in their teaching and learning practices.</li> <li>✓ Utilizing Culturally Responsive Education embedded within a sound historical model, continue to build the capacity of English and Social Science faculty to understand culture and how to teach within frames of students' histories, identities and literacies.</li> <li>✓ Implement equity/mastery grading pilot.</li> </ul>
<b>CLED Student STEM Gaps</b>	<ul style="list-style-type: none"> <li>✓ Informed by the D-STEM Equity Model assessment and the STEM Equity Program Evaluation Rubric, align pre-existing IMSA programs to create a STEM pre-enrichment pathway that prepares CLED students for IMSA.</li> </ul>
<b>Staff Recruitment, Support, Retention</b>	<ul style="list-style-type: none"> <li>✓ Complete the Equity and Excellence in Teacher Recruiting at IMSA guide.</li> </ul>

	<ul style="list-style-type: none"> <li>✓ Continue to implement a modified version of the Rooney Rule, in that every faculty opening requires interviewing at least two racially diverse candidates.</li> <li>✓ Create faculty pathway program of faculty development institute, diverse fellows, visiting scholars, faculty exchange, adjunct faculty, student teachers.</li> <li>✓ Establish a process of "cluster hiring" to recruit diverse candidates with interdisciplinary backgrounds.</li> <li>✓ Discuss the creation new faculty/adjunct faculty positions that teach cultural-related studies.</li> <li>✓ Create a professional development program in which members of the Senior Leadership Team and Academic Discipline Teams serve as mentors for new employees.</li> </ul>
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While this Equity and Excellence Scorecard is the final equity step of the E<sup>2</sup>: Equity and Excellence Framework, it is not the conclusion of advancing educational equity. Instead, it brings to light the impact of the equity work in both areas of growth and those that need improvement, thus informing future equity and excellence work.

## Discussion

While the E<sup>2</sup>: Equity and Excellence Framework was designed by a secondary STEM high school whose mission is to advance the human condition, any educational institution with a commitment to advancing equity and excellence can apply it. It is an equity-minded, research-based, inclusive framework with the underlying premise of advancing equity and excellence, centering historically marginalized groups. In addition, it is adaptable so that educational institutions can apply it within their context, as well as applicable to other marginalized groups, including, but not limited to the ethnic/racial, lower socio-economic status, LGBTQ+, neurodiverse, female, rural, twice-exceptional, and/or undocumented citizens.

The ideal manner to apply E<sup>2</sup>: Equity and Excellence Framework is through following each equity step sequentially, as they build upon and inform one another. However, specifically with the Equity and Excellence Policy, this equity step can potentially occur at any point in the application of the framework, as an educational institution may face barriers in getting this board policy approved. If such barriers occur, an educational institution may choose to create an equity and excellence statement, inclusive of the same policy elements. Other equity steps that can be taken throughout and upon conclusion of the implementation of the Equity and Excellence Framework include equity-minded capacity building, data collection, and data meaning-making, to aid in the evolution of the equity and excellence policy and plan. In Table 9 is the E<sup>2</sup>: Equity and Excellence Framework in action.

Table 9. E<sup>2</sup>: Equity and Excellence Framework

<i>E<sup>2</sup> Framework Step</i>	<b>Definition</b>	<b>E<sup>2</sup> Framework Step Pathway</b>
<i>Education Equity Impact Case</i>	The Value of Equity and Excellence	<ul style="list-style-type: none"> <li>- Research and share concepts of equity and equity trends.</li> <li>- Review and identify aspect of the organization's mission, vision, beliefs, strategic plan in which a focus on equity can strengthen the outcome.</li> <li>- Based on the research, discuss the value of engaging in equity work in relation to the organization's mission, vision, beliefs, and strategic plan.</li> <li>- Connect the value add of equity to improved teaching and learning.</li> </ul>
<i>Equity and Excellence Policy</i>	The Outcome of Equity and Excellence	<ul style="list-style-type: none"> <li>- Define equity within the context of the educational institution.</li> <li>- Apply a model of Inclusive Excellence               <ul style="list-style-type: none"> <li>o Define excellence</li> <li>o Seek feedback from constituent groups throughout the process, centering the voices of individuals from historically marginalized groups.</li> </ul> </li> <li>- Apply the Theory of Change               <ul style="list-style-type: none"> <li>o Considering the Educational Equity Impact Case, identify the long-term outcome of institutionalizing and prioritizing equity and excellence.</li> <li>o Considering the Educational Equity Impact Case, identify 5 - 7 intermediate outcomes of institutionalizing and prioritizing equity and excellence.</li> </ul> </li> <li>- Define terms mentioned in the outcome statements for shared meaning.</li> </ul>
<i>Equity-mindedness Capacity Building</i>	The Embracing of Equity and Excellence	<ul style="list-style-type: none"> <li>- Identify and partner with an organization that provides equity-minded professional learning for educational institutions.</li> <li>- Provide on-going equity-minded professional learning that develops knowledge and skills, as well as shares research-informed practices.</li> <li>- Offer opportunities for leadership and discipline/department specific equity-minded professional learning.</li> </ul>
<i>Equity-Minded Data Collection</i>	The Truth of Equity and Excellence	<ul style="list-style-type: none"> <li>- Conduct Theory of Change assessment, identifying assumptions, pre-conditions, and strategies for each intermediate outcome defined in the Equity and Excellence policy.</li> <li>- Create equity and excellence data</li> </ul>

		<p>collection/meaning-making team that is inclusive of representatives from all internal constituent groups and the external community, intentionally including those from historically marginalized groups.</p> <ul style="list-style-type: none"> <li>- Provide professional learning that builds the capacity of the team to engage in equity-minded data collection and meaning making processes.</li> <li>- Implement Equity Context Analysis Process or similar process that includes: <ul style="list-style-type: none"> <li>o Climate Surveys</li> <li>o Faculty interviews</li> <li>o Classroom observations</li> <li>o Building walk-throughs</li> <li>o Internal data such as academic performance, teacher credentials, enrollment in advanced and rigorous coursework, and discipline, desegregated by race, income, gender, sex, ability.</li> </ul> </li> </ul>
<i>Equity-Minded Data Meaning-Making</i>	The Inclusiveness of Equity and Excellence	<ul style="list-style-type: none"> <li>- Summarize information collected during the Equity-Minded Data Collection Process</li> <li>- Equity and Excellence team examines the data in an inclusive manner using triangulation and co-interpretation approaches</li> <li>- Identify the most significant inequities that emerged from the data</li> </ul>
<i>Equity and Excellence Plan Development</i>	The Heart and Soul of Equity and Excellence	<ul style="list-style-type: none"> <li>- Determine the length of the plan, with a recommendation of a three or five year plan.</li> <li>- Situate each policy immediate outcome within the organization's structure, i.e. operational dashboard, strategic plan, etc.</li> <li>- Align each immediate outcome with the equity indicator.</li> <li>- Develop a rationale for each immediate outcome, discussing the related inequities, which emerged in the data-collection process.</li> <li>- For each immediate outcome, identify 3 – 5 strategies that respond to the data in the rationale.</li> <li>- For each strategy, develop year one interventions. Additional interventions for the following years will be determined by progress made and informed by benchmark data that will emerge from the Equity and Excellence Scorecard.</li> <li>- Identify assessments to measure progress for each of the immediate outcomes.</li> </ul>

		<ul style="list-style-type: none"> <li>- Develop a system of accountability, identifying specific departments/teams that will be responsible for implementing strategies and related intervention.</li> </ul>
<i>Equity and Excellence Scorecard</i>	The Impact and Future of Equity and Excellence	<ul style="list-style-type: none"> <li>- Review assessments identified in the Equity and Excellence Plan development process to confirm they are the action-oriented instruments that obtain data from diverse perspectives, especially those from historically marginalized groups, to measure the immediate outcomes.</li> <li>- Administer the assessments early on in year one of the Equity and Excellence Plan.</li> <li>- Analyze data and establish baselines.</li> <li>- Share the results with those accountable for implementing strategies for each immediate outcome in the Equity and Excellence Plan.</li> <li>- Utilize the data to inform current interventions and develop future year interventions.</li> <li>- Conduct informal pulse checks to get feedback on intervention effectiveness.</li> <li>- Re-administer assessments during the final year of the Equity and Excellence Plan to measure progress and achievement of Equity and Excellence Policy immediate outcomes, and ultimately the long-term outcome.</li> <li>- Utilize results to inform future renditions of the Equity and Excellence Policy and Plan.</li> </ul>

## Conclusion

An intricate examination of equity, equity lens, equity-mindedness, inequities, and excellence, along with equitable practices within the context of education on both a national and global levels were discussed throughout this paper. Based on research and both the professional and personal experiences of Black scholars, the E<sup>2</sup>: Equity and Excellence Framework was developed as an approach that educational institutions can apply to advance equity and excellence. While the framework was developed for a STEM focused, secondary school, located in the United States, it is designed with global scalability. As discussed previously, educational inequities exist both nationally and globally. Although the underlying premise of the inequities may differ in nature and negatively impact different groups, this framework is designed in a manner that considers equity within the context of the country and educational institution, its mission, values, beliefs, and strategies, as well as approaches to teaching and learning. As educational institutions around the globe begin to apply this E<sup>2</sup>: Equity and Excellence Framework, they should reflecting and build upon the value, outcome,

embracing, truth, inclusiveness, heart and soul, as well as impact and future of equity and excellence, contributing to the evolution of the framework, addressing current and forthcoming educational inequities. With an informed evolution, along with persistent, intentional, and equity-minded application of the  $E^2$ : Equity and Excellence Framework, educational inequities can be vastly diminished and potentially eliminated.

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## Appendix A

IMSA's Equity and Excellence Plan										
<i>Long-Term Outcome:</i>										
<i>The Academy recognizes and acknowledges the historical underrepresentation and marginalization of culturally, linguistically, and economically diverse groups, both universally, and particularly, in STEM education and professions. These disparities also exist in the representation of the Academy's workforce. We are committed to advancing equity in STEM education and representation and creating a diverse, inclusive community of global citizens who can realize their full potential, and execute our mission to advance the human condition, through a model of Equity and Excellence.</i>										
IMSA Pillars	IMSA Priority Outcome	Equity and Excellence Policy Outcomes	Rationale - What does the Data Say? Theory of Change (TOC) and Equity Context Analysis Process (ECAP)	Strategies					Equity and Excellence Scorecard	Responsible Parties
				Strategy #	Equity Indicator	Year 1	Year 2	Year 3		
	Develop Educator STEM Proficiency	<b>Providing professional learning that continuously develops the Cultural Competence and equity awareness of staff, including faculty, as well as board members and external partners.</b>	<p>According to the Equity Context Analysis Process, only 46% of staff and 38% of administrators believed there was ongoing support for professional learning and growth for all educators, staff members and administrators that is aligned with strategic improvement efforts, is job-embedded, and includes coaching and mentoring. While</p> <p>most believed that educational equity is centered as a cross-cutting tenet in all professional learning experiences, the Theory of Change data collection process suggested that professional learning is too general, surface-level, and does not include practical application. The ECAP further said that while there is rhetoric about advancing educational equity, there appears to be a lack of understanding of what equity is and specific instructional and curricular practices that would lead to equitable outcomes for all students. It was suggested that IMSA provides time for professional learning that extends beyond theory and is inclusive of discipline specific practical application strategies and techniques. This should include on-going assessment of equity-mindedness and cultural competence. Based on the IMSA Student Diversity Climate survey which states that over four years of data, approximately 1/3 of Black students do not feel safe on campus because of their race, along with 30 years of stories shared on Black at ISMA by IMSA students, alum, current and former staff/faculty that discuss an institutional culture of racism at IMSA, an anti-racist professional learning agenda is being put forth..</p>	1.1	Leadership and Governance	Build the capacity of IMSA staff, including faculty to be equity-minded and culturally competent by providing department/discipline specific professional learning opportunities.	Continue to build capacity of IMSA staff, including faculty focused on the practical application of equity-mindedness and cultural competence in teaching and learning.	Provide on-going coaching, mentoring and support to continue advancing to higher levels of understanding and intentional application of equity-mindedness and cultural competence in teaching and learning.	Intercultural Development Inventory (IDI)	Cabinet, Principal's Office, Senior Leadership Team, Office of Diversity, Equity and Inclusion, Academic Discipline Teams
				1.2	Leadership and Governance	Use existing qualitative and quantitative evidence to demonstrate the need to engage in anti-racist professional learning with the goal of achieving racial equity. Then utilize the Racial Equity Theory of Change to inform, implement and build the capacity of Senior Leadership Team and Academic Discipline Teams to engage their respective departments/disciplines in anti-racist professional learning agenda.	Communicate the expectation to and continue building the capacity of Senior Leadership Team and Academic Discipline Teams to engage their respective departments/disciplines in anti-racist professional learning. This includes an emphasis on engaging with identity-based literacy to reduce the extra "invisible tax" placed on People of Color to improve conditions.	Provide ongoing coaching, mentoring and support as departments/disciplines engage in anti-racist teaching and learning.		Cabinet, Senior Leadership Team
				1.3	Environment and Resources	Provide professional learning to Center for Teaching and Learning and IN2 to build their capacity to develop and implement equity-centered professional learning opportunities for IMSA partners.	Continue building capacity and examine current and new professional learning offerings to external partners through an equity lens and reimagine offerings through that lens.	Through Center for Teaching and Learning, provide equity-minded professional learning experiences for external partners.		Center for Teaching and Learning, Center for Innovation and Inquiry
				Strategy #	Equity Indicator	Year 1	Year 2	Year 3		

STEM Teaching and Learning	Broaden Student Interest and Participation	<b>Implementing strategies to recruit, support and retain Culturally, Linguistically and Economically Diverse groups and support and retain Marginalized groups.</b>	Based on findings from the Equity Context Analysis Process, approximately 1/3 of students feel unsafe at IMSA because of their race or sexual orientation. It was further reported that racist and homophobic remarks were regularly heard at IMSA, and when adults were present, nearly 50% of the time, they do not intervene. During the school building walk-through, 30% agreed/strongly agreed that the building climate is not student and family centered, nor does it facilitate a safe and inclusive learning environment. The Theory of Change data suggested that IMSA needs to create a welcoming and inclusive environment that creates equity focused support plans. Based on the IMSA Student Diversity Climate survey which states that over four years of data, approximately 1/3 of Black students do not feel safe on campus because of their race, along with 30 years of stories shared on Black at ISMA by IMSA students, alum, current and former staff/faculty that discuss an institutional culture of racism at IMSA, an anti-racist professional learning agenda is being put forth.	2.1	Environment and Resources/ Instruction and Assessment	Recruitment: Examine and revamp the Admissions Recruitment Strategy through an equity lens and with representation goals.	Recruitment: Implement equity-minded and differentiated recruitment strategy, being intentional about equitable access.	Recruitment: Monitor and measure CLED recruitment progress through an equity lens.	STEM Equity Program Evaluation Rubric	Admission, PROMISE, CIT, DEI
				2.2	Environment and Resources/ Instruction and Assessment	Support: Create a comprehensive, equity-minded educational program that is rooted in social justice and develops cultural competence, with an intentional focus on anti-racist education.	Support: Implement equity-minded educational program for students that is rooted in social justice and develops cultural competence, with an intentional focus on anti-racist education.	Support: Continue to implement equity-minded educational program and evaluate student growth.	Student Diversity Climate Survey / Trauma Responsive School Implementation Assessment	Office of Diversity, Equity and Inclusion, Student Life, Residential Life
				2.3	Environment and Resources	Retention: Reduce the number of CLED and other marginalized students who don't feel safe on campus by developing a plan to assist them in transitioning into and through IMSA.	Retention: Implement process to assist CLED and other marginalized students in transitioning into and through IMSA.	Retention: Monitor and evaluate process to assist CLED and other marginalized students in transitioning into and through IMSA.		Principal's Office (CAC's, IRC, Strategies Team), Student Life, Faculty, Resident Counselors, DEI
	Develop Students' STEM Thinking	<b>Differentiating resources as necessary to provide every student with access to Culturally Competent pedagogy, curriculum, co-curriculum, support, facilities and other educational resources with an ultimate goal of achieving Excellence.</b>	The Equity Context Analysis Process yielded that culturally responsive teaching is not evident approximately 50% of the time (score = 344/696). It was agreed upon by 50% of parents and observed during classroom interactions that 21% of the time instruction is not relevant to nor representative of students' lived experiences and personal identities, or builds upon students' prior knowledge. While curricular materials fostering an understanding and appreciation of students own cultural histories and practices, as well as those of groups different from themselves were only observed 19% of the time during classroom observations; instruction and assessments are differentiated and adjusted to address a continuum of student learning rates, interests, funds of knowledge, and assets, were observed 73% of time during classroom observations and agreed upon by 70% of parents. As observed, positive representations of diverse peoples (e.g., lived experiences, personal identities, and world views) are not present throughout IMSA in texts, displays, and materials, and experiences of historically marginalized groups are not represented accurately, evident 47% of the time during classroom interactions, 58% of the time during school building walk-through and agreed	<b>Strategy #</b>		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>		
				3.1	Instruction and Assessment	Apply learnings from professional development to begin revising current curriculum to be culturally responsive by framing the value of differentiation within the context of the achievement of educational equity.	Implement revised culturally responsive curriculum, including asset-based racial identity development and equitable grading that is framed by the value of differentiation within the context of the achievement of educational equity.	Provide on-going coaching, mentoring and support in the implementation of a culturally responsive curriculum, as well as assess the students experiences with said curriculum to inform its' evolution.	STEM Education Equity Analysis Tool	Principal's Office, Faculty
				3.2	Environment and Resources/ Instruction and Assessment	Examine access to culturally responsive and differentiated academic, social-emotional, and assistive supports and create a plan (faculty- staff collaboration) to achieve equity.	Implement a plan to improve access to culturally responsive and differentiated academic, social-emotional, and assistive supports, with the goal of achieving equity.	Measure the level of institutionalization of a cultural responsive and differentiated academic, social-emotional, and assistive supports, through an equity-minded frame.	Trauma Responsive School Implementation Assessment	Principal's Office (CAC's, IRC, Strategies Team), Academic Discipline Teams, EXCELS, Student Life, Residence Life, Office of DEI, IT, TMC, Facilities, Security

			upon by 69% of parents. It was further observed that sufficient structures are not in place to ensure cultural, socio-emotional, physical, and intellectual safety in the learning community, observed 36% of time during school building walk-through and 14% of time during classroom observations. The ECAP also yielded significant inequities across CLED populations in access to some STEM offerings. From the Theory of Change process, it was suggested that IMSA creates a common understanding of what cultural competence looks like in practice and provide related professional learning, as well as ensure faculty understand their audience, include culturally relevant language/culturally relevant examples and "problem sets", so that equity and excellence is demonstrated in all learning offerings.	3.3	Environment and Resources/ Instruction and Assessment	Access and Meaningful Participation: Improve access by creating a pathway for CLED students to meaningfully participate in higher level/advanced STEM courses, leadership positions, academic/ social-emotional organizations, etc.	Access and Meaningful Participation: Continue to strengthen pathway for CLED students and broaden the curriculum to include more courses that consider the diversity of cultures, ideas and perspectives that will contribute to meaningful participation in and center the voices of CLED and marginalized students in the curriculum.	Access and Meaningful Participation: Measure progress of CLED student pathway and continue to include an international context and globalization.	CLED Student STEM course enrollment data	Principal's Office, Faculty, Admissions, EXCELS, Office of Institutional Research
				<b>Strategy #</b>	<b>Equity Indicator</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>		
	Strengthen Identity as a Learning Laboratory	<b>Supporting research, scholarship and innovative expression of staff, including faculty as well as external partners that either address or promote the Equity and Excellence Model.</b>	According to the Equity Context Analysis Data Process, 58% of staff and 67% of administration do not agree that evidence-based support systems are implemented to increase the likelihood of successful implementation of innovations, and are perceived by building leadership and staff to be helpful. This suggests that there needs to be structures in place to collect, hold, and disseminate data. In addition, the Theory of Change discussed the need to remove barriers that interfere with students and staff, including faculty engaging in research, scholarship and innovative expression.	4.1	Leadership and Governance	Develop and strengthen the resources and infrastructure to support the highest level of equitable and inclusive research, scholarship and innovative expression that addresses issues of diversity, equity, inclusion and anti-racism.	Provide on-going support for the creation and sharing of research, scholarship and innovative expression that addresses issues of diversity, equity, inclusion and anti-racism.	Increase IMSA's presence and leadership in national and international research, scholarship and innovative expression groups and publications.	Contributions to the Body of Knowledge	Office of DEI, IRC, OIR, IN2, SIR, Principal's Office
				4.2	Environment and Resources	Examine current IMSA research, scholarship, and innovative expression offerings (e.g. SIR, Internships, etc.) for students through an equity lens and reimagine accordingly.	Institutionalize research, scholarship, and innovative expression experiences, so that CLED and other marginalized students have access to said experiences.	Evaluate the experiences of CLED and other marginalized students while engaged in research, scholarship, and innovative expression.	SIR and IN2 CLED student participant data	Principal's Office, SIR, IN2, IRC, OIR
				<b>Strategy #</b>	<b>Equity Indicator</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>		
Operational Capacity	Build Fiscal Sustainability and Grow Programs	<b>Developing and using an equity lens when considering major policies, programs, practices, or decisions in order to realize more equitable outcomes.</b>	The ECAP yielded an Equity Dimension Score, in which IMSA received 344/696 for Culturally Responsive Teaching and 569/762 for Student Centered Learning. In fact, teacher interviews demonstrated a lack of understanding between the difference of equality and equity, and most had an underlying belief that educational equity happened organically. In addition, it was found that only 22% of parents, 37% of staff and 46% of administrators believed that school improvement efforts focus on changing policies, systems, and adult practices to better support students rather than 'fixing' students, and are coordinated such that efficiencies are optimized and redundancies are minimized.	5.1	Leadership and Governance	Develop an equity lens to examine current and forthcoming policies, practices, curriculum, programs, services, and resources.	Communicate about and provide training on the equity lens with the expectation that all departments/disciplines examine their current and forthcoming policies, practices, curriculum, programs, services, and resources through that lens, to build educational and race equity. Then create, communicate and maintain robust accountability systems in the form of performance indicators.	Provide on-going support as departments/disciplines reimagine and design policies, practices, curriculum, programs, services, and resources to achieve equity and measure progress.	Policy Equity Analysis Tool	Cabinet, DEI, OPA, OIR
				5.2	Leadership and Governance	Develop a process to collect, organize, analyze and make meaning of diversity, equity and inclusion related institutional data, including data from the equity lens examination of department/discipline	Begin to collect and organize diversity, equity and inclusion related institutional data, including data from the equity lens examination of department/discipline specific policies, practices, programs, services, and	On-going collection, organization, analysis and meaning-making of data, with a specific focus on demonstration of progress and growth in achieving equity.	Equity Scorecard	OIR, DEI

						specific policies, practices, programs, services, and resources.				
				<b>Strategy #</b>	<b>Equity Indicator</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>		
		<b><i>Addressing Culturally, Linguistically and Economically Diverse and gender-based STEM education/career gaps by developing student and professional programs and services, as well as conducting research, that will inform strengthening and diversifying the STEM education to career pipeline.</i></b>	The Theory of Change data suggests that IMSA examine the impediments that lead to CLED/gender gaps in STEM fields. Then address, confront and disrupt the racial and gender bias that exists in STEM education and careers. It further stated that IMSA's Center for Teaching and Learning needs to have more representation across the State of Illinois to share the value of diversifying STEM and STEM equity to solve the problems of the world.	6.1	Environment and Resources	Examine the body of literature around racially and gender-based STEM inequities to create understanding and learn about best practices, including the D-STEM Equity Model to minimize the gap that will inform the revamping of current and development of new programs focused on achieving equity.	Implement STEM programs designed to achieve racial and gender STEM equity and continue to build upon D-STEM Equity Model by creating a racially-based STEM potential identification protocol and a culturally responsive STEM curriculum.	Create STEM education to career pathway through partnerships to ultimately achieve racial and gender equity in STEM careers as well as pilot, package and share D-STEM equity model with related identification protocol and curriculum.	STEM Equity Program Evaluation Rubric	CTL IN2, DEI, PROMISE
				<b>Strategy #</b>	<b>Equity Indicator</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>		
Stakeholder Engagement	Build the IMSA Ecosystem	<b><i>Implementing strategies based on the Equity and Excellence Model to recruit, support and retain staff, including faculty, as well as board members and external partners.</i></b>	Through the ECAP classroom observations, it was found that 80% of teachers observed were White. In addition, IMSA data indicates the following in terms of faculty demographics: 79% White, 0% Black, 7% Latino, and 14% Asian. When asked about availability of leadership mentoring programs at the school, only 13% of Administrators, 63% of faculty, and 50% of staff responded yes.	7.1	Environment and Resources	Recruitment: Develop and implement a equity focused staff, including faculty recruitment plan, inclusive of representation goals.	Recruitment: Provide on-going professional learning for search committee members, for incorporating best practices (implicit bias, critical race theory, cultural competence) on diversity, equity and inclusion in the hiring and advancement of staff, including faculty.	Recruitment: Monitor and assess equity focused staff, including faculty recruitment plan.	The Institutional Model for Increasing Faculty Diversity and Self-Assessment Tool	Human Resources, DEI,
				7.2	Environment and Resources	Support/Retention: Develop a process that assists staff, including faculty with transition into and through IMSA by building upon best practices in mentoring and academic/career support, ensuring that talent is nurtured.	Support/Retention: Implement process that assists staff with transition into IMSA, and retention, by building upon best practices in mentoring and academic/career support, ensuring that talent is nurtured.	Support/Retention: Monitor and access process that assists individuals with transition into IMSA with the ultimate goals of development, advancement and retention.	Engagement Survey	

## The Role of Teacher Education in the Science Literacy Development

By Eva Klemenčič\*, Mateja Ploj Vrtič<sup>±</sup> & Janja Majer Kovačič<sup>°</sup>

*One of the aims of education is to produce wise and responsible citizens who are aware of their impact on the environment and can address and solve daily life problems. From this point of view, science education leading to science literacy is helpful for all students, regardless of their future careers. In this paper, we first review the definitions of science literacy in the literature and present the strategies for its development. In Slovenia, we refer to the ongoing national project NA-MA POTI. Most of the strategies studied focus on primary and secondary schools. However, for the development of science literacy in primary and secondary education, teachers themselves must achieve a sufficient level of science literacy. The research was conducted with a small group of prospective teachers, focusing on three components of science literacy: asking research questions, making hypotheses, and designing an experiment. In addition, we analysed the curricula of the science didactics courses in the teacher education program. The findings show a great need for a systematic change in the curricula. Finally, proposals and ideas for improving the curricula for the didactics of science and the syllabus of the Subject teacher study program are presented.*

**Keywords:** science literacy, teacher education, didactics of science, didactics of technics & technology, curricula

### Introduction

The term “literacy” is widely used through the ability to read and write and, more generally, through the connotation that it can be used effectively in various aspects of life. It is common to speak of technological, scientific, and even political and social literacy (Fensham & Harlen, 1999; Harlen, 2000; Fensham, 2002). Literacy means having sufficient knowledge and appropriate skills, regardless of profession, specialization, or occupation. Today, the importance of literacy is justified by growing concerns about spreading misinformation and conspiracy theories that contradict established scientific knowledge and findings (Howell & Brossard, 2021; Sharon & Baram-Tsabari, 2020). Therefore, the ultimate goal of literacy should be to teach people to think critically by instilling in them the joy of science (Britt, Richter, & Rouet, 2014; Fortus, Lin, Neumann, & Sadler, 2022).

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\*Assistant Professor, Faculty of Natural Sciences and Mathematics & Faculty of Energy Technology, University of Maribor, Slovenia.

<sup>±</sup>Associate Professor, Faculty of Natural Sciences and Mathematics, University of Maribor, Slovenia.

<sup>°</sup>Assistant Professor, Faculty of Natural Sciences and Mathematics, University of Maribor, Slovenia.

So, what does it mean to be “science literate”? Since the term science literacy was used in the late 1950s, it has no precise definition, and we could define it as a kind of general education in science (Almeida, Santos, & Justi, 2022; Matthews, 2014; DeBoer, 2000; Bybee, 2010; Millar & Osborne, 1998; Hodson, 2003). This point of view was already highlighted at the “World Conference on Education for All” in 1990 by UNESCO, where the primary goal of science education was stated to be the promotion of “a world community of scientifically and technologically literate citizens” (UNESCO, 1999, cited in Millar, 2006).

Nowadays, we are confronted with frequent changes in various scientific fields that affect many aspects of our lives. Moreover, these changes affect daily decision-making processes at the individual and community levels. The ability to identify, address and solve science and technological problems is part of scientific literacy. For the development of science and scientific literacy, science education is essential. It is the key to positive societal changes, developing positive attitudes towards the environment, and engaging individuals in efforts towards sustainable development. In Slovenia, the ongoing national project “Scientific and Mathematical Literacy: The Development of Critical Thinking and Problem Solving” (from now on referred to as NA-MA POTI) addresses the importance of developing scientific literacy in formal education. At this point, through our research and this contribution, we would like to highlight the importance of the role of the teacher and his/her awareness of the importance of students’ scientific literacy. Other authors also point out the importance of pre-service teachers promoting science literacy in their students (Pahrudin, 2019, Al Sultan, Henson, & Fadde, 2018; Almeida, Santos, & Justi, 2022).

Science education can specifically enhance the development of science and scientific literacy through careful curriculum design. In the report on the Beyond 2000 project in the UK, Millar and Osborne (1998) argue that the science curriculum should be seen primarily as a course to support scientific literacy development. On the other hand, it should also deliver sufficient science knowledge for aspiring students. By including problem-based learning and research-based learning in the teaching practice, science education could support scientific literacy development and advanced knowledge in science. Furthermore, some authors (Tarmo, 2014; Miller, 2001) suggest competence-based curricula, which are especially common in vocational education but point out the possibility of deviation from content and consequently poor knowledge. However, competencies are essential for lifelong learning and will have an even more significant role in the future. Science curricula should emphasize the process of research, rather than guided experiments where students do not think about the individual step of the research (Ploj Vrtič, 2022). Ploj Vrtič highlighted the scientific research procedural steps as one of the most important elements of scientific literacy.

### **Literature Review**

By popularizing the phrase “science” literacy, Hurd introduced as early as 1958 a label for the established notion that mastery of the (natural) sciences was essential preparation for modern life (Hurd, 1958). As one of the most influential

reformers of science education, he also posed the question that is as relevant today as it was then (Hurd, 1958, p. 14): “Is it possible to develop a philosophy of education and design a curriculum that will prepare young people for the approaching period of global industrialization, characterized by great discontinuity in scientific and social development?”. The general feeling that some scientific theories and findings are “good to know” is also spreading in educational research and discussions about science education. Hurd used the term “science and/or scientific” literacy primarily to define new goals in science education, as he did in his widely cited works “Science literacy: Its meaning for American schools” and “Scientific literacy: New minds for a changing world” (Hurd, 1958; Hurd, 1998). Similarly, Roberts and Bybee later claimed that scientific literacy and science literacy as a curriculum concept are closely related to science education (Roberts & Bybee, 2014, p. 545). Miller (1983) propose three constructive dimensions of the concept of scientific literacy: (i) norms and methods of science, (ii) cognitive scientific knowledge, and (iii) attitudes towards organized science. Further, in their careful analysis, Norris and Phillips (2003) develop a convincing argument that “scientific literacy” must be based on the fundamental meaning of literacy as the ability to analyse and interpret texts. They have listed several different concepts of scientific literacy that appear in the science education literature, such as:

- Knowledge of the substantive content of science and the ability to distinguish science from non-science.
- Understanding science and its applications.
- Knowledge of what counts as science.
- Independence in learning science.
- Ability to think scientifically.
- Ability to use scientific knowledge in problem-solving.
- Knowledge needed for intelligent participation in science-based social issues.
- Understanding the nature of science, including its relationships with culture.
- Appreciation of and comfort with science, including its wonder and curiosity.
- Knowledge of the risks and benefits of science or
- Ability to think critically about science and to deal with scientific expertise.

Moreover, the same authors (Norris and Phillips, 2003) point to a dual, related but different understanding of literacy that is nevertheless interrelated, i.e., literacy as primary goals on the one hand, and skill development, knowledge, learning, or education more broadly as higher goals on the other. Bybee (1997), DeBoer (2000), Bybee (2010), Bybee and McCreae (2011) argue that science literacy should not be defined in terms of specifically prescribed learning outcomes but should be defined broadly enough to pursue the goals of the individual science education programs in which it is used. Osborne (2007), on the other hand, problematizes that science education as practiced does not meet the needs of today’s youth, arguing that today’s science curricula and practices are primarily ‘fundamental,’ meaning that the focus is on educating future scientists rather than future citizens. Roberts (2007) has provided a clarifying discussion of scientific

literacy, including political and intellectual perspectives. However, according to Laugksch (2000), the conceptualization of scientific literacy masks different meanings and interpretations associated with scientific literacy, for example, due to varying understandings of what the public should know about science and who “the public” is. The different meanings and interpretations can lead to the concept of scientific literacy being seen as a confusing concept. Furthermore, Roberts (2007) notes that some authors (though not all) treat the terms “science literacy” and “scientific literacy” as synonyms. Almeida, Santos, and Justi (2022) also recently emphasized the same. DeBoer (2000, p. 582), on the other hand, believes that the terms are not uniform and have different meanings and definitions. Furthermore, DeBoer advocates using the terms as synonyms for the public understanding of science and simply talking about the exact science education. Feinstein (2011) suggests that an instrumental version of the term “science literacy” must be linked to the actual use of science in daily life - what is sometimes called public engagement with science. Holbrook and Rannikmae (2007) suggest that the term “science literacy” should be retained. However, it is necessary to link it to understanding the nature of science, personal learning characteristics, including attitudes, and the development of social values. The same authors also show that another crucial component in defining scientific literacy is an appreciation of the nature of science (Holbrook & Rannikmae, 2009). It is evident that the use of both terms (science and scientific) has a long history in science education and has been used indiscriminately without a proper consensus on their meaning. As Laugksch (2000, p. 71) stated, “Scientific literacy has become an internationally recognized educational slogan, catchword, phrase, and modern educational goal.” In addition, scientific knowledge is constantly growing and changing, making the terms “science literacy” and “scientific literacy” even more challenging to distinguish. As Britt, Richter, and Rouet (2014) point out, instead of focusing on the difference between these two terms, educational research and discussion should focus on questions such as “What is science (scientific) literacy? Why are science texts challenging for readers? What do non-scientists need to know and do to consume scientific information - real or fake - from the internet? How can students be prepared to critically reflect on the information they find in inquiry-based learning activities?”

The Programme for International Student Assessment (hereafter PISA) has also highlighted problems in defining science and scientific literacy. PISA is an international comparative study of student knowledge and literacy. It requires students to extrapolate their learning, think outside the box, and apply knowledge in new situations (Schleicher, 2019). Therefore, the focus is on literacy (especially reading, mathematical, and science), and competencies encompass knowledge, skills, and attitudes. In the PISA framework (OECD, 2019), scientific literacy refers to “knowledge of science and science-based technology.” The term “scientific literacy” indicates that PISA focuses on applying scientific knowledge in real-life situations related to science and technology. PISA defines scientific literacy as:

- Explaining phenomena scientifically.

- Evaluating and designing scientific inquiry.
- Interpreting data and evidence scientifically.

Scientifically literate individuals must acquire content, procedural, and epistemic knowledge to address, understand, and explain phenomena; to identify features of scientific inquiry and apply methods, practices, and strategies in designing, conducting, and evaluating scientific investigations; and to identify, justify, and consider questions, procedures, and claims. Details can be found in PISA 2018 Assessment and Analytical Framework (OECD, 2019).

### **Science Literacy Development within NA-MA POTI**

In Slovenia, NA-MA POTI addresses the importance of developing science literacy development and connects the main actors in formal general education: the National Education Institute Slovenia, all three public universities in Slovenia, and 97 educational institutions (kindergartens, primary and secondary schools). The role of the universities is to:

- Cooperate in defining science literacy and mathematical literacy.
- Elaborate didactic approaches, strategies, and recommendations for the vertical development of science and mathematical literacies.
- Elaborate methods and tools to assess progress in the development of science and mathematical literacies.
- Evaluate didactic approaches and strategies.

The project's main objective is to develop and implement pedagogical strategies for developing science and mathematical literacy, critical thinking, and problem-solving. The project aims to support sustainable vertical development of science literacy of children and students in preschool, primary and secondary education. It also aims at the horizontal effect of other literacies, such as reading, digital, and financial. To equip and support teachers, members of the project's working groups develop didactic approaches and materials for implementation and organize workshops and seminars. Each working group has its focus: science literacy, mathematical literacy, critical thinking, authentic problems and gamification, a supportive environment for a positive attitude towards science and mathematics, and teamwork.

This paper focuses on science literacy, within which scientific literacy is also developed. Science literacy encompasses knowledge and skills related to science and attitudes towards science. It manifests in applying knowledge and skills to solve problems, interpret natural phenomena, acquire new knowledge, and gain new insights. Within NA-MA POTI, the definition of science literacy includes awareness of how science and technology shape our environment, a willingness to cooperate, and the ability to communicate and transfer knowledge. For evaluation purposes, science literacy needs to be standardized. Therefore, we present three building blocks of science literacy as defined in NA-MA POTI (Bačnik et al., 2022):

- 1.Science and Scientific Explanation of Phenomena.
- 2.Scientific Research in Science, Interpretation of Data and Evidence.
- 3.Attitude towards Science.

The first building block aims at students' ability to recognize, explain, and evaluate science and technology phenomena, processes, and laws, as well as their interrelationships and dependencies in systems. The second building block focuses on describing, planning, conducting, and evaluating research (experiment, product manufacturing). It also deals with the students' ability to analyse, evaluate, and present data and formulate relevant conclusions. The third building block focuses on developing appropriate, proactive attitudes (values, beliefs) towards nature, environmental protection, science, and research. Each building block is divided into more minor elements, as shown in Table 1.

*Table 1. Building Blocks and Elements of Science Literacy after Bačnik et al. (2022)*

Building block		Elements
		The student...
1 Science and Scientific Explanation of Phenomena	1.1	... recalls, connects, and applies knowledge to describe and explain science and technology phenomena using professional terminology
	1.2	... obtains relevant information using different sources to explain concepts and phenomena
	1.3	... identifies, uses, and creates (scientific) explanations of phenomena, including different representations, models, and analogies
	1.4	... identifies and explains the possible use of knowledge and its impacts and consequences for individuals, society, and the environment
2 Scientific Research in Science, Interpretation of Data, and Proofs	2.1	... identifies and assesses contents (topics, problems, phenomena) that can be scientifically researched within science and identifies the research problem
	2.2	... formulates research questions
	2.3	... formulates appropriate predictions/hypotheses for research (experiment, product manufacturing)
	2.4	... plans the research (experiment, product manufacturing) step-by-step
	2.5	... ensures the safe and responsible implementation of the research (experiment, product manufacturing) by appropriate use of accessories (measuring devices, apparatus, laboratory equipment ...)
	2.6	... edits, analyses, and interprets obtained data
	2.7	... analyses and critically evaluates the implementation of research, suggest improvements, and reports the research results
3 Attitude towards Science	3.1	... acts as a part of nature and takes care of a responsible attitude towards nature and the environment
	3.2	... develops and demonstrates an appropriate attitude towards science and scientific research

For each element, we set descriptive criteria to assess a student's level of science literacy. The descriptive standards are different for the levels of education (pre-school, primary, and secondary) and are vertically graded. The descriptive criteria for each element at each level of education represent the highest expectations for the development of science literacy. We present descriptive criteria for two elements of the second building block: 2.3 Formulating appropriate research hypotheses (Table 2) and 2.4 Planning Step-by-step Research (Table 3).

*Table 2. Descriptive Criteria to Evaluate Students' Ability to Formulate Research Hypotheses after Bačnik et al. (2022)*

Education level		Descriptive criteria
Pre-school education		The student...
		... predicts what will happen, what will be observed, and what will be results (and why)
Primary education	First triad (Grades 1-3)	... predicts what will happen and what will be results based on the research questions and experiences ... formulates hypotheses by asking questions such as "how and what would happen if ..." ... recalls personal experience or pre-knowledge to clarify hypotheses
	Second triad (Grades 4-6)	... predicts what will happen and what will be results based on the research questions ... formulates hypotheses by asking questions such as "how and what would happen if ..." and considers what is changing and what is remaining constant ... justifies hypotheses based on personal experience or pre-knowledge
	Third triad (Grades 7-9)	... formulates hypotheses based on the research questions and pre-knowledge ... formulates hypotheses that include dependent and independent variables using sentences such as "If ... then..." ... evaluates hypotheses and distinguishes between hypotheses and unsubstantiated predictions ... recognizes dependent and independent variables from a given hypothesis
Secondary education		... formulates scientifically testable hypotheses based on the research questions ... formulates hypotheses that include dependent and independent variables ... evaluates hypotheses from the expert's point of view and concerning a research question ... formulates hypotheses that can be scientifically verified in terms of current (school) conditions ... infers to the research question based on given hypotheses and recognizes

As can be seen from Table 2, pre-school education focuses on asking and answering questions about what will happen when certain phenomena are observed. The phenomena should be appropriate for pre-school children, e.g., the

floating and sinking of different objects in water (“Which object floats on the water? Why?”) and the melting of ice (“What happens to ice cubes at room temperature? Why?”). By the end of primary school, students should be able to make predictions, formulate hypotheses based on their experience and knowledge, and recognize dependent and independent variables. This is also the last stage of compulsory education in Slovenia. At the end of secondary school, we expect students to be able to formulate scientifically testable hypotheses based on the research questions and evaluate them. When training students in hypothesis formulation, we start by asking simple questions and then build up to questions that lead students to form relevant hypotheses that can be proved or disproved. The descriptive criteria for other elements of the building blocks have a similar vertical gradation. Therefore, in Table 3, we focus only on the descriptive criteria for the secondary level, which is of interest to us.

*Table 3. Descriptive Criteria in Secondary Education to Evaluate Students’ Ability to Plan Research Step-by-Step after Bačnik et al. (2022)*

Education level		Descriptive criteria
		The student...
Secondary education		... plans the research, identifies external factors, dependent, independent and controlled variables (constants), and predicts their interactions
		... obtains information on the safe and ethical implementation of the research, predicts possible hazards, and plans appropriate security measures and protection (including data collected)
		... designs a research plan, selects qualitative or quantitative approaches to data collection (including digital technologies) according to the research purpose and is aware of the subjectivity and objectivity of obtaining data
		... plans honest research and is aware of its importance and restrictions/limitations
		... proposes appropriate sampling and research samples considering statistics (size, structure, randomness, representativeness, exclusion criteria)
		... plans and selects the right accessories (measuring instruments) and a fair and reasonable number of measurements/repetitions depending on the research type
		... plans, identifies, and justifies the control research (experiment, test) and distinguishes between controlled and control experiments
		... knows the reasons for measurements’ uncertainties and that each measurement has limited accuracy (systematic and random errors)
		... justifies the importance of research repeatability

By the end of secondary school, we expect students to be able to plan safe and honest research using appropriate measurement tools, measurement, and data

collection methods. In addition, we expect students to be aware of research limitations and the importance of repeatability and accuracy of research.

Science education in Slovenia has a good starting point since the science-related subjects are throughout the whole duration of compulsory education. Furthermore, many schools are included in the development projects to enhance science, math, digital, and entrepreneurship competencies (Klemencic, Flogie, & Repnik, 2022). Comparative analysis of science subjects and mathematics curricula by Káčovský et al. (2021) shows curricula in Slovenia have higher percentages of learning outcomes requiring conceptual and procedural knowledge. However, analysis pointed out lower percentages of learning outcomes requiring higher levels of cognitive processes (analysis, evaluation and creation). In addition, as argued by Boujaoude (2002), science curricula should have scientific literacy topics to support the development of science and correspondingly scientific literacy. Furthermore, curricula should thus determine not only the content of the course but also suggest the teaching methods and strategies. Similar impulses can be found elsewhere in the world. For example, Al Sultan, Henson, & Fadde (2018) and Pahrudin (2019) emphasize that curriculum designers should prioritize the dimension of scientific literacy in the curriculum.

Moore, Coldwell, and Perry (2021) show the role of curriculum materials, which consist of schemes of work, lesson plans, class activities, and assessments, on teacher professional development using keyword analysis.

### **The Aim of the Study**

The project NA-MA POTI focuses on the science literacy development from pre-school to the end of secondary education, meaning it excludes tertiary education. To develop science literacy in primary and secondary education, teachers themselves must achieve a sufficient level of science literacy. As the subject didactics of science and technology, the authors set themselves the following goals:

- to evaluate the level of science literacy of prospective science and technology subject teachers, and
- to analyse the curricula of subject didactics of natural sciences and technology, whether they contain elements that enable the development of science literacy in students, prospective science and technology subject teachers.

The study focuses on the components of science literacy, specifically on two elements of the second building block (see Table 1): formulating scientifically testable hypotheses and designing an experiment to test the hypotheses. Based on the synthesis of the findings, we intend to find opportunities to improve the curricula of subject didactics in teacher education, which will contribute to raising the science literacy of prospective science and technology teachers.

From the literature review, we found that the topical issue of scientific literacy is widely discussed. However, our research is one of the first to highlight the role

of teachers in developing students' scientific literacy. By improving teacher education, raising teachers' awareness of the importance of scientific literacy, and teaching them how to develop it in students, we highlight the uniqueness of our contribution.

### A Brief Presentation of the Teacher Education in Slovenia

One must briefly understand the educational vertical to understand the concept of teacher education. Slovenian pre-tertiary education is therefore presented in Table 4. In addition to pre-tertiary education in Slovenia, Table 4 also shows which types of teacher education are required for teaching at individual levels of education. In this paper, we discuss prospective subject teachers, and for a more straightforward idea of which part of the educational vertical they will be able to teach, they are marked in bold.

Table 4. The Pre-Tertiary Education in Slovenia

Pre-tertiary education		Qualification required to teach at this level of education <sup>1</sup>	Study program to get the required qualification
Compulsory Basic education: Primary school (9 years)	Primary school (Grades 1-5)	primary teacher (one teacher is teaching all subjects)	Primary teacher education covers a wide range of areas (master study program – 5 years of study)
	Lower secondary school (Grades 6-9)	<b>Two-stream subject teacher</b> (math, physics, chemistry, history, technics and technology, sport,...)	<b>Two-stream subject teacher education. Students are studying two subjects, e.g., math &amp; physics, biology &amp; chemistry, ... (master study program – 5 years of study)</b>
Secondary education (Up to 4 years)	Vocational school (Vocational matriculation examination at the end of school) (3 or 4 years)	<b>Mostly two-stream subject teachers</b> (math, physics, chemistry, history, sport,...)	- For the general subject: <b>Two-stream subject teacher education. Students are studying two subjects, e.g., math &amp; physics, biology &amp; chemistry, ... (master study program – 5 years of study)</b> - For particular vocational subjects: After finishing the basic non-pedagogical program (e.g., mechanical engineering, wood processing...), the additional pedagogical program must be done to get a license for teaching. (3-5 years + license for teaching)
	High school-general upper secondary education (Matriculation)	<b>Dominated by the single-stream subject teacher</b> (math, physics, chemistry, history,	<b>Single-stream subject teacher education. Students are studying one subject (master study program – 5 years of study)</b>

<sup>1</sup>The “subject teacher” education is marked in bold – these programs we deal with in this article.

	examination at the end of school) (4 years)	sport,...)	
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The subject teacher education regularly offers two options of study: single-stream and two-stream study. Alternatively, someone who completed master's studies in a non-pedagogical program (e.g., Biology, Mathematics, or Engineering) can enrol in a 60 ECTS pedagogical program to get a license for teaching. The subject teacher programs, whether single- or two-stream, consist of two major modules: (1) non-pedagogical module(s) (depending on the chosen field of study: math, physics, biology, ...) and (2) pedagogical module which includes at least 60 ECTS in pedagogical subjects (such as psychology, pedagogy, work with students with special needs, general didactics, ...) and teaching practice. In addition to general pedagogical subjects, subject-specific pedagogical subjects are also included in the pedagogical module. We call them subject didactics. Subject didactics connect subject professional contents with general didactics and discuss different ways of teaching, depending on the specifics of each subject profession. The development of science literacy is one of the competencies that have many opportunities to be developed within the subject didactics of science and technology.

The training of science and technology teachers in Slovenia is carried out at two universities: the University of Ljubljana and the University of Maribor. Our research was conducted at the University of Maribor.

## Methodology

The qualitative study is expected to draw upon multiple (at least two) sources of evidence (Bowen, 2009). Therefore, our study was conducted in two parts: (1) research on the science literacy of prospective science and technology subject teachers and (2) in-depth analysis of the curricula of subject didactics of natural sciences and technology.

### *The Research on Science Literacy of Prospective Science/Technology Subject Teachers*

The qualitative research was conducted on the sample of 7 students in the third year of study, prospective science/technology subject teachers at the University of Maribor, in June 2021. Due to the very small number of students in the science and technology subject teacher program (Dolenc, Šorgo, & Ploj Virtič, 2021), our sample comprises as many as a third of all enrolled students. The sample was carefully selected (Shaheen & Pradan, 2019) in such a way as to represent the different subject orientations of the study (Physics, Technics & Technology, Math, Biology, and Chemistry); see Table 5.

Table 5. Study Orientation of the Students in the Research

Student 1	Physics and Technics & Technology
Student 2	Math and Technics & Technology
Student 3	Biology and Chemistry
Student 4	Biology and Chemistry
Student 5	Math and Physics
Student 6	Math and Technics & Technology
Student 7	Physics and Technics & Technology

Students were invited to a “Scientific Research in Science and Technology” workshop. During the workshop, we followed the goals related to the elements of science literacy, and the content discussed the current field of energy, which connects science and technology.

#### The Description of the Workshop

In the introductory presentation, we presented to the students some theoretical starting points related to solar energy and its exploitation. They learned about the advantages of solar energy over other forms of energy and understood the different types of solar cells and their characteristics in detail. An experiment followed the theoretical work. Participants received work instructions - worksheets subject to qualitative analysis in the following procedure - as a pre-test. In the pre-test, the participants were placed in the role of a researcher who sought answers to research questions through various experiments. The first pre-test task on a 4-point scale (never, once, 2-5 times, and more than five times) checked previous experience with conducting experiments on science subjects, research assignments, at home, or elsewhere. The second task included two research questions (RQ1: “How to charge the phone battery using solar cells?”, RQ2: “How to charge the phone battery using solar cells the fastest?”) and required participants to set appropriate hypotheses (Hs) before starting the experiment. The third task required participants to plan the experiment step-by-step. After they had experimented, a comprehensive discussion and evaluation of the pre-test results were done. The debate highlighted important factors of procedural knowledge of scientific research in different case studies. In the post-test, the students were given new research questions and were asked to tackle them using the steps they had learned, without experimenting, this time. They were asked to set appropriate hypotheses and plan the experiment step-by-step.

#### Assessing Criteria and Coding of the Responses

Previous experiences with conducting scientific experimentation were coded into three categories:

- (1) Beginner (students who never experimented).
- (2) Moderately experienced (students who did not experiment more than five times in any of the listed activities).
- (3) Expert (students who indicated that they had experimented more than five times in at least one of the listed activities).

As a starting point for developing criteria for assessing the progress of students' scientific literacy, we have summarized scientific research skills to be focused on in the study based on the descriptors for procedural knowledge developed in the national project NA-MA-POTI. The qualitative research was done on:

- a) a student formulates a scientifically testable hypothesis(es) based on the research question and related knowledge, which includes a dependent and an independent variable;
- b) a student designs the experiment by defining the variables (dependent and independent) to be studied.

The criteria (as follows) were developed for each procedural scientific research skill we focused on in the study.

Students' responses to the task "Set the Hypotheses (Hs) based on the research questions RQ1 and RQ2" were divided into seven categories:

- The Hs are not posed/not defined as an assumption.
- The Hs are not posed/there is just a list of factors.
- The Hs for the RQ1 are deficient. No variables are included.
- The Hs for the RQ1 are relevant, variables included; the Hs for the RQ2 are not posed.
- The Hs for the RQ1 are relevant, variables included; the Hs for the RQ2 are not relevant.
- The Hs for the RQ1 are relevant, variables included, at least one relevant H for the RQ2 is posed.
- The Hs for the RQ1 are relevant, variables included, two or more relevant Hs for the RQ2 are posed.

Students' responses to the task "Design the Experiment to test your Hypotheses" were divided into four categories:

- The research plan is irrelevant/not possible to check the Hs.
- The research plan is deficient; variables are included.
- The research plan is relevant; variables are not included.
- The research plan is relevant; variables are included.

### **In-depth Analysis of the Curricula of Subject Didactics of Natural Sciences and Technology**

For the second part of our study, we conducted a document analysis. Bowen (2009) listed many advantages of the document analysis method; one is that the documents are non-reactive, not affected by the research process, and remain stable and suitable for repeated inspections. The document analysis in our study is based on the deductive category application approach (Azungah, 2018) focused on content analysis (Elo & Kyngäs, 2008).

### Research Sample: Relevant Curriculum Documents

To begin with, we analysed the list of competencies promised to graduates of the “Subject Teacher” study program. Further document analysis consisted of nine subject didactics curricula: Biological didactical practicum 1, Biological didactical practicum 2, Didactic of technology education 1, Didactic of technology education 2, Didactics of Biology, Didactics of physics 1 with practicum, Didactics of physics 2 with practicum, Chemistry Didactics 1, and Chemistry Didactics 2. In addition to general information about the subject, all curricula contain content, primary literature, objectives and competencies, intended learning outcomes, teaching methods, assessment methods, and lecturer’s references. All curricula are compulsory subjects, depending on the field of study (e.g., a biology and chemistry student has Didactics of Biology, Biological didactical practicum 1, Biological didactical practicum 2, Chemistry Didactics 1, and Chemistry Didactics 2).

### Research Procedure

At the initial stage, the research team used the building blocks presented in Table 1 to generate a list of science literacy-related search terms, so-called keywords, to be searched in the curricula of subject didactics of natural sciences and technology. The keywords were as follows: (1) experiment\*, (2) hypothes\*, (3) research\*, (4) scientif\*, (5) laborator\*, and (6) manufactur\*. Identifying science literacy topics in the documents was conducted by searching for the keywords.

## Results

The research results of prospective science/technology subject teachers on science literacy, specifically on the ability to form hypotheses and plan experiments step-by-step, are summarized in Table 6. All participants are most experienced with conducting experiments, which is expected as they are in their third year of the “Subject teacher” study program. However, the results also indicate their experiences are related more to the content knowledge and less to the process of experimenting and researching. Overall, participants have poor prior knowledge of formulating appropriate hypotheses. We notice that students with study orientations in Math, Physics, and Technics & Technology had better prior knowledge and advanced more concerning students of study orientations in Biology and Chemistry. The opposite is true in designing the experiment, where students of Math, Physics, and Technics & Technology study orientations have a lower starting point. However, after the workshop, all participants show the ability to design a research plan that is comprehensive and relevant.

Table 6. The Research Results on Science Literacy of Prospective Science/ Technology Subject Teachers

Student	Previous experiences	“Set the Hs based on the research question RQ1 and RQ2”		“Design the Experiment to test your Hs”	
		Pre-test	Post-test	Pre-test	Post-test
Student 1	3	3	4	1	3
Student 2	3	3	7	1	4
Student 3	3	1	2	3	4
Student 4	3	1	4	4	4
Student 5	2	3	6	1	4
Student 6	3	4	7	2	4
Student 7	3	2	6	2	4

Table 7 shows the basic descriptive statistical analysis of the data collected and the calculated effect size Cohen's  $h$ , a measure of distance between two proportions. Effect sizes between 0.2 and 0.3 are considered small, values around 0.5 are considered medium, and values above 0.8 are considered large effect size (Cohen, 1988).

In both cases, Cohen's  $h$  is large. We can interpret this as the sense that the planned learning activity statistically significantly improves the ability to hypothesise students' ability to plan a step-by-step experiment.

Table 7. Descriptive Statistics and Cohen's  $h$  Effect Size (Cohen 1988)

	Mean	Med	Mod	St. Dev	Sum (%)	Cohens' $h$
Previous experiences (categories 1-3)	2.86	3	3	0.38	20 (95%)	0.78
“Set the Hs based on the research question RQ1 and RQ2” – pre-test (categories 1-7)	2.42	3	3	1.13	17 (35%)	
“Set the Hs based on the research question R Q1 and RQ2” – post-test (categories 1-7)	5.14	6	4, 7, 6	1.86	36 (73%)	
“Design the Experiment to test your Hs” – pre-test (categories 1-4)	2.00	2	1	1.15	14 (50%)	1.17
“Design the Experiment to test your Hs” – post-test (categories 1-4)	3.86	4	4	0.38	27 (96%)	

Our in-depth analysis of the curricula of natural sciences and technology subject didactics and studies indicates the lack of science literacy topics. Table 8

presents the document analysis results of subject didactics courses and the list of students' competencies after the study program. It is essential to mention that students gain experience with researching, problem-solving, and experimenting within other subject-specific courses, where the focus is more on the content. On the other side, subject didactics courses emphasize process knowledge and prepare students to transfer knowledge as teachers.

Table 8. Results of Document Analysis

	<i>experiment*</i>	<i>hypothes*</i>	<i>research*</i>	<i>scientif*</i>	<i>laborator*</i>	<i>manufactur*</i>
List of competences	0	0	0	0	0	0
Biological Didactical Practicum 1	5	0	0 <sup>1</sup>	1	11 <sup>a</sup>	0
Biological Didactical Practicum 2 <sup>2</sup>	5	0	0 <sup>a</sup>	1	8 <sup>a</sup>	0
Didactics of Biology	0	0	2 <sup>a</sup>	2	0 <sup>a</sup>	0
Didactic of Technology Education 1	0	0	0	0	0	0
Didactic of Technology Education 2 <sup>b</sup>	0	0	4	0	0	0
Didactics of Physics 1 with Practicum <sup>b</sup>	14	0	0	0 <sup>a</sup>	7 <sup>a</sup>	0
Didactics of Physics 2 with Practicum	13	0	0 <sup>a</sup>	0 <sup>a</sup>	4 <sup>a</sup>	0
Chemistry Didactics 1	0	0	0	0	0 <sup>a</sup>	0
Chemistry Didactics 2 <sup>b</sup>	0	0	0 <sup>a</sup>	0	0 <sup>a</sup>	0

The list of acquired competencies after completing the study program Subject Teacher does not include any of the selected keywords. Moreover, not one of the chosen keywords is in Chemistry Didactics 1, Chemistry Didactics 2, and Didactic of Technology Education 1 curricula. In addition, none of the subject didactics' curricula addresses hypotheses. Including selected keywords in curricula is the highest for study orientations Physics and Biology.

## Discussion

The results on science literacy research of prospective science/technology teachers indicate shortcomings in students' knowledge and ability to formulate

<sup>1</sup>The number of results is filtered - the results that are part of the form or lecturer's references are removed.

<sup>2</sup>The courses are taught in the 4th year and have not yet been attended by the students involved in the research.

hypotheses based on research questions and design relevant experiments (see pre-test results in Tables 6 and 7). Interestingly, all students are highly experienced with experimental work, as they have many subject-specific courses intensive on laboratory and field exercises. Regardless, subject-specific courses focus on contents and less on the research process itself. Thus, students had difficulty formulating hypotheses despite their experience with experimental work. Previous research has confirmed that experimentation and teaching with active student involvement is not a guarantee of better results (Waldrop, 2015). Scientific activities must be properly integrated into the teaching process, emphasising the research process and placing students in the role of independent researchers (Ploj Vrtič, 2022).

Similar hypothesis formulation results were also reported by Aydoğdu (2015) among prospective science teachers in Turkey, who used them to investigate the poor performance of Turkish 4th and 8th-grade students in the TIMSS science literacy survey.

Students with orientation in Math, Physics, and Technics & Technology performed slightly better (see Table 6), which might be because mathematics requires greater systematicity. At the same time, students of these orientations are more familiar with the variables (dependent and independent) and external parameters that affect interactions. Based on the curricula analysis, students do not address the formation of hypotheses within the subject didactics regardless of the study orientation. However, based on the research results, there is a visible upgrade in the post-test. The starting point in the ability to formulate hypotheses and the advancement after the workshop were lower for students of orientation in Biology and Chemistry. Therefore, it is somehow surprising these students were better at designing experiments when compared to students of Math, Physics, and Technics & Technology orientations.

The latter could be the implementation of practical exercises and experiments, where students, in most cases, only conduct experiments according to instructions, search for answers to research questions, and test given hypotheses. In this way, students have a deep understanding of the content of the experiments but do not have the opportunity to plan individual research steps independently. Therefore, we agree with Saat (2004), who wrote that science teaching needs to be redesigned to emphasize science process skills.

Based on the curricula analysis, it is expected Math orientation students have lower prior knowledge about experiment design, as it is less represented in curricula. However, students in Physics orientation have many experimental and laboratory exercises (see Table 8, “Didactics of Physics 2 with Practicum” and “Didactics of Physics 2 with Practicum”) but still have a poor ability to plan relevant experiments. Despite the inclusion of practical exercises in the curricula, we can conclude that there are shortcomings because the experiments are more or less focused on the content, not the process. The latter is also indicated by the lack of hypotheses in the analyzed curricula.

At this point, we can confirm that the advices written in the PISA 2018 Assessment and Analytical Framework (OECD, 2019) and by Ploj Vrtič (2022), which emphasizes the importance of procedural skills and content knowledge, are

very well taken into account. Osborne's (2007) warnings that it is necessary to maintain an appropriate balance of essential content and scientific competencies in science education (and consequently in science curricula) that will enable the education of future scientists, as well as future responsible citizens, must be taken into account.

The limitation of the study is a small sample of prospective science and technology students. Nevertheless, they represent a third of all enrolled students. During research analysis, we found that previous experience with experimentation should be further categorized since all students fall into the "expert" category. In addition, the chosen research problem addressed in the workshop has also impacted the results, as some students can be more familiar with it. We should also point out that document analysis focuses on subject-didactics curricula, despite knowing science and scientific literacy can develop through other courses. In addition, we searched keywords related to the formulation of hypotheses and planning of an experiment. However, those are only two elements of science literacy defined in NA-MA POTI, meaning curricula could include other elements, for example, describing and explaining phenomena, editing, analysing, and interpreting data.

## Conclusions

To develop science literacy through science education, it is necessary to train prospective science/technology subject teachers. The latter is a prerequisite for science literacy to continue developing. We note that tertiary education, which is responsible for educating prospective science and technology teachers, is not included in development projects such as NA-MA POTI. Consequently, science and scientific literacy are not intentionally included in the education process. The latter is also evident from the analysis of the curricula. The curricula focus on content knowledge and not on the comprehensive development of competencies, including skills and attitudes. As the curricula form the basis for teachers' preparation and delivery of lessons, the introduction of science and scientific literacy is essential. However, curricula are not a recipe to be followed without deviation. Teachers are more or less free in their choice of teaching methods and approaches and can thus promote the development of process knowledge and skills. Following the science literacy framework defined in NA-MA POTI, subject didactics curricula should contain elements of each building block shown in Table 1.

In response to our research findings, we propose a further in-depth analysis of the curricula and the study program as a whole about the development of science literacy development, as this is one of the goals that prospective science and technology teachers should achieve at the end of higher education. The curricula, especially for subject didactics, should include elements of science literacy. However, we must know that changes are also needed at the implementation level. For example, some curricula already include experiments and laboratory work but do not sufficiently promote the development of science literacy, as students mostly follow prepared instructions strictly. Therefore, we believe that more inquiry-

based learning and independent problem solving could encourage the development of science and scientific literacy. In addition, we suggest that teachers encourage students (prospective science and technology teachers) to include some elements of science literacy in their lesson plans. This would lead to the conscious inclusion of elements of science literacy in classroom activities. If students get used to consciously including elements of science literacy, they are more likely to do so when teaching in schools.

The study aimed to highlight the importance of teacher training for the further development of science literacy. Currently, measures to support the development of science literacy are systematically implemented from preschool to the completion of secondary education, which means that tertiary education students are excluded regardless of their field of study. Therefore, higher education teachers in specific areas of study need to include science literacy content in the curriculum or adapt the delivery of classroom activities to support the development of science literacy.

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# Research and Innovation Staff Exchange as a Frame for Collaboration of Higher Education with Industry: Lessons Learned from WrightBroS Horizon 2020 EU Project

By Krzysztof A. Cyran\*

The paper focusses on a collaboration between academia and industry. As an *introduction*, we present typical behavior of university researchers, who often define the area of application without consulting it with industrial partners, and we propose different approach which led to the definition of the scope of the WrightBroS project. The project, entitled “Collaborative Factory of the Flight Simulators Branch of RISE” is financed by the European Union in the frame of Horizon 2020 MSCA Research and Innovation Staff Exchange (RISE) programme. The international Consortium composed of Higher education (Silesian University of Technology from Poland) and industrial (LG Nexera from Austria and Virtual Reality Media from Slovakia) sectors, has designed a project as a collaborative platform whose know-how results from knowledge sharing among partners. Then, from the experience gained in the implementation of the WrightBroS and other similar projects, by using *case-study methodology* we demonstrate how representatives of education and industry in the new joint environment supplement each other in common research efforts. We also present methods for knowledge sharing, in particular achieved by intersectoral staff exchanging. Then we present the *results* achieved by collaboration of Higher Education with Industry in the WrightBroS project. Finally, the *discussion* in the context of tackling broader challenges of intersectoral collaboration leads to the conclusions that this kind of environment is very efficient way to overcome typical difficulties in academia and industry dialog, which is so common in the global world.

**Keywords:** academia and industry collaboration, Horizon 2020 MSCA, research and innovation staff exchange, Horizon Europe MSCA, Augmented Reality (AR), flight simulators

## Introduction

In contemporary global world, collaboration between academia and industry is essential for both these sectors: research performed in the former should have a potential for commercialization by the latter. However, despite this fact is widely known, the successful collaboration of higher education with industry is often a challenge. There is certainly a natural temptation to perform research which is useful for deployment in real-world applications, but many examples show that the results of research do not find appropriate ways to be commercialized and deployed. One of the reasons lies in defining applicability goals of a research by the researchers

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\*Virtual Flight Laboratory Director, Department of Computer Graphics, Vision and Digital Systems, Silesian University of Technology, Poland.

only. Typically, they are experts in science and technology but not necessarily, or even rarely, experts in observing market trends. Therefore, instead of trying to define area of application by academic scientists, more productive is to discuss this issue with managers of innovative companies. Their everyday life is focused in recognizing these trends and if the innovative business is successful, it means they do their job well. Such discussions were the basis for defining aims of the WrightBroS project entitled “Collaborative Factory of the Flight Simulators Branch of RISE” and financed by European Union in the frame of Horizon 2020 MSCA Research and Innovation Staff Exchange (RISE) programme. Therefore, at the core of this project is an actual commercial need of the world-class flight simulators manufacturer, Virtual Reality Media company from Trencin, Slovakia. This need has defined the main technological goal: Augmented Reality system supporting training of pilots in flight simulators and allowing for remote servicing and maintenance of the simulator. In order to achieve this goal, the flight simulator should have smart diagnostic features, so the auxiliary goal has been defined as a NewTechnology flight simulator with self-diagnostic modules. Technological and research challenges were identified by the Coordinating Silesian University of Technology from Gliwice, Poland. This bilateral cooperation between Higher Education and Industry was supplemented by LG Nexera, an IT company from Vienna, which added knowledge management concepts whose application makes the results more general and scalable.

Having defined the research and technological goals with strong commercialization potential, the Consortium has designed a project as a collaborative platform, kind of a common factory, whose know-how results from knowledge sharing among academic and industrial partners. This sharing is achieved by intersectoral staff exchanging. Silesian University of Technology researchers and PhD students are seconded to both companies, where, in the industrial environment, they collaborate with staff of their hosts. The EU financial contribution to members of the staff as well as institutions involved in training through research, makes this collaboration possible also from a budgetary perspective. This possibility is continued in Horizon Europe MSCA Staff Exchange programme. From what we have learned as the intersectoral Consortium implementing the collaborative WrightBroS project, we conclude that this kind of environment is a very efficient way to overcome typical difficulties in academia and industry dialog, which is so common in the global world.

More details on aforementioned challenges will be given in the next sections of the paper which is organized as follows: The rest of the paper contains the Literature review and Methodology sections where the model of intersectoral collaboration is presented. Then, Results and Discussion sections precede the Conclusions, Acknowledgements and References which are closing the article.

## Literature Review

The first main objective of the Research and Innovation Staff Exchange (RISE) is defined as promoting the international and intersectoral collaboration through research and innovation staff exchanges. The second is sharing of knowledge and ideas from research to market (and vice-versa) for the advancement of science and the development of innovation. The proposed research and innovation activities have the goal to exploit complementary competences of the participants, as well as other synergies between academia and industry. In addition, this kind of project enables networking activities, organisation of workshops and conferences to facilitate sharing of knowledge, new skills acquisition and career development for research and innovation staff members. Following these objectives, the European Commission provides funding for the sending of staff members (called secondments) to participating organisations to achieve two short-term goals of the RISE scheme (H2020 Programme Guide for Applicant, 2018):

1. Staff members perform tasks to achieve the deliverables of the proposed R&I action.
2. Staff members develop new R&I and transferable skills to boost future career opportunities through the RISE action and connected networking activities.

A RISE projects are based on a set of clear R&I objectives and robust project management plan to achieve the goals and maximal impact of the action. The R&I tasks/deliverables are implemented through secondments of staff members with an in-built return mechanism to foster knowledge sharing and long-term collaboration. This scheme has been successfully implemented in many actual RISE projects (Yartys et al., 2021; Boese et al., 2019; Monni, Palumbo, & Tvaronavičienė, 2017). It also has been used in the WrightBroS project, the partial results of which have been given for example by Nurzynska, Skurowski, Pawlyta, and Cyran (2021), Bach, Werner, Mroziak, and Cyran (2021), or Skurowski, Nurzyńska, Pawlyta, and Cyran (2022). This project is coordinated by Silesian University of Technology (SUT) in Gliwice, Poland.

The author of the paper and manager of the WrightBroS project is a director of the Virtual Flight Laboratory (VFL) at SUT which is the professional lab equipped with 15 flight simulators – more on this exceptional lab in Europe can be found in (Zazula, Myszor, Antemijczuk, & Cyran, 2013). Therefore, the capacities offered by academic VFL are used in the project for implementation of the training in flight simulation for industrial partners. Flight simulation uses a technique called flight simulator, to simulate the flight of an airplane and the surroundings in which it flies. In addition, it mimics the model that controls how an aircraft flies and how it responds to flight control applications and its external elements like air density, turbulence, precipitation, wind shear, cloud, etc. In this regard, augmented reality (AR) is a potential technology for developing enhanced interfaces with interactive and wearable visualization systems to apply new techniques for

displaying documents as digital data and graphical databases (de Crescenzo et al., 2011).

Interestingly, VFL also participated in some other EU projects (before WrightBroS), such as for example 7FP project EGALITE “Research on EGNOS/Galileo in Aviation and Terrestrial Multi-sensor Mobility Applications for Emergencies Prevention and Handling”. The EGALITE project was designed for intersectorial transfer of knowledge and staff training between large university from Poland, Silesian University of Technology, and two efficient SMEs: Pildo from Barcelona, Spain and LG Nexera from Vienna, Austria. The project’s goals were to make research and development activities in the field of multi-sensors mobility applications for emergency prevention and handling using European EGNOS/Galileo global navigation satellite system (GNSS). Through collaborative research programme, the partners aimed at developing prototypes of original and innovative terrestrial and aviation GNSS applications such as integration of ADS-B unit with Emergency Prevention and Handling System (EPHS) (see for example: Baron et al., 2014; Antemijczuk, Sokolowska, & Cyran, 2012).

We also participated in 7FP projects in consortia of more than 10 partners from whole Europe (HEDGE NEXT “Helicopter GNSS Deploy in Europe NEXT”, SHERPA “Support on Pre-operational Actions in GNSS”).

### Methodology

This paper, as a typical case study paper, uses the inductive methodology which is based on inferring the conclusions based on the experience gained in the implementation of this particular project (primarily) and other similar projects. By experience gained we mean in particular understanding how the methods which have applied in implementation of the project and the technological results we obtained, have led to achieve not only the specific goals of the project but also, in a broader sense, how they allow to create the appropriate platform for collaboration between Academia and Industry. We start with presentation of the methods through which this intersectoral collaboration had materialized in our project. Then, in the same section, we will compare it with methods used in other similar projects. The obtained results and conclusions derived from the experience that we (and others) have gained in implementation of RISE type projects, will be presented in subsequent sections.

WrightBroS as a H2020 RISE project is coordinated by Silesian University of Technology, Gliwice, Poland, who collaborates with two industrial partners: LG Nexera, Vienna, Austria, and Virtual Reality Media, Trencin, Slovakia, using a budget of around 1mln EUR. The methods which are used in the WrightBroS project to obtain its specific goals include:

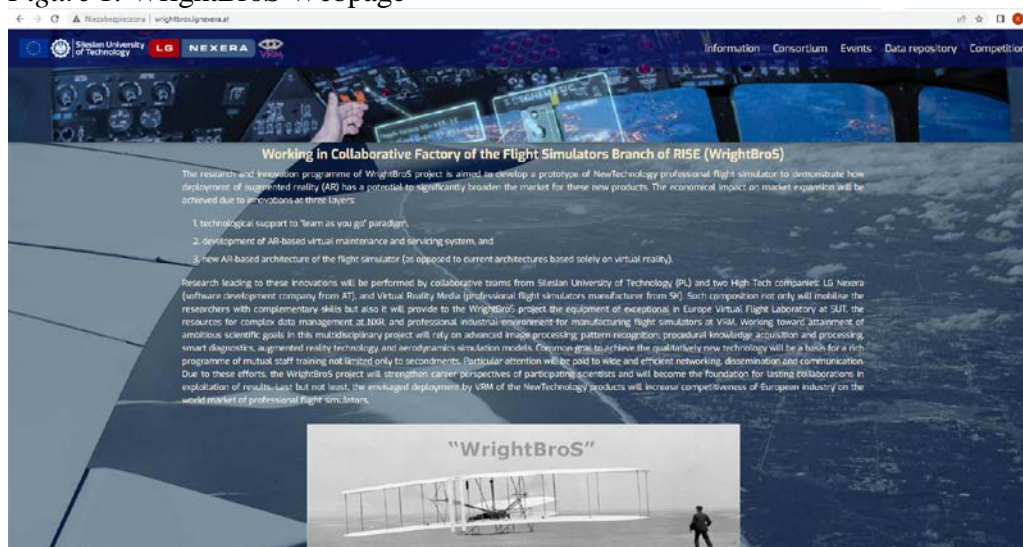
- Intersectoral secondments of the staff.
- Training of the seconded staff.
- Research and Development activities.
- Networking and culture sharing.

How each of these methods was implemented by actual activities is described in what follows.

Communication in the project started by creating the project's website available under address <http://wrightbros.lgnexera.at>. This is a living platform intended to grow together with accumulation of interesting facts occurring during project's execution. Currently, after the first reporting period, WrightBros webpage contains information about the main goals of the project, the Consortium responsible for its implementation, as well as notes about main events which have been organized thus far. In the second reporting period it is planned to act also as the dissemination tool by supplementing its content with a brief description of the results achieved and a list of published papers.

The home page of the WrightBroS website is given in Figure 1.

Figure 1. WrightBroS Webpage



Having the acronym which commemorates the Wright Brothers, our project, in addition to achieving all scientific and technological objectives, has been focused on broadening among its participants the knowledge about pioneering aviation works of Wilbur and Orville. Therefore, on 24th of July 2019, the SUT staff seconded to NXR visited the Museum of Technology in Vienna, where artifacts relevant for the history of aviation (and thus for the project), such as the original airplane engine built by Wright Brothers, could be seen.

The 1st Thematic School on Knowledge Management Systems was the next event organized. It took place from 26th to 27th of September 2019 at the LG Nexera company's headquarters in Vienna.

We also organized communication events for public at large. In the first reporting period they were organized in Virtual Flight Laboratory (VFL) at SUT (see Figure 2).

Figure 2. Virtual Flight Laboratory at SUT

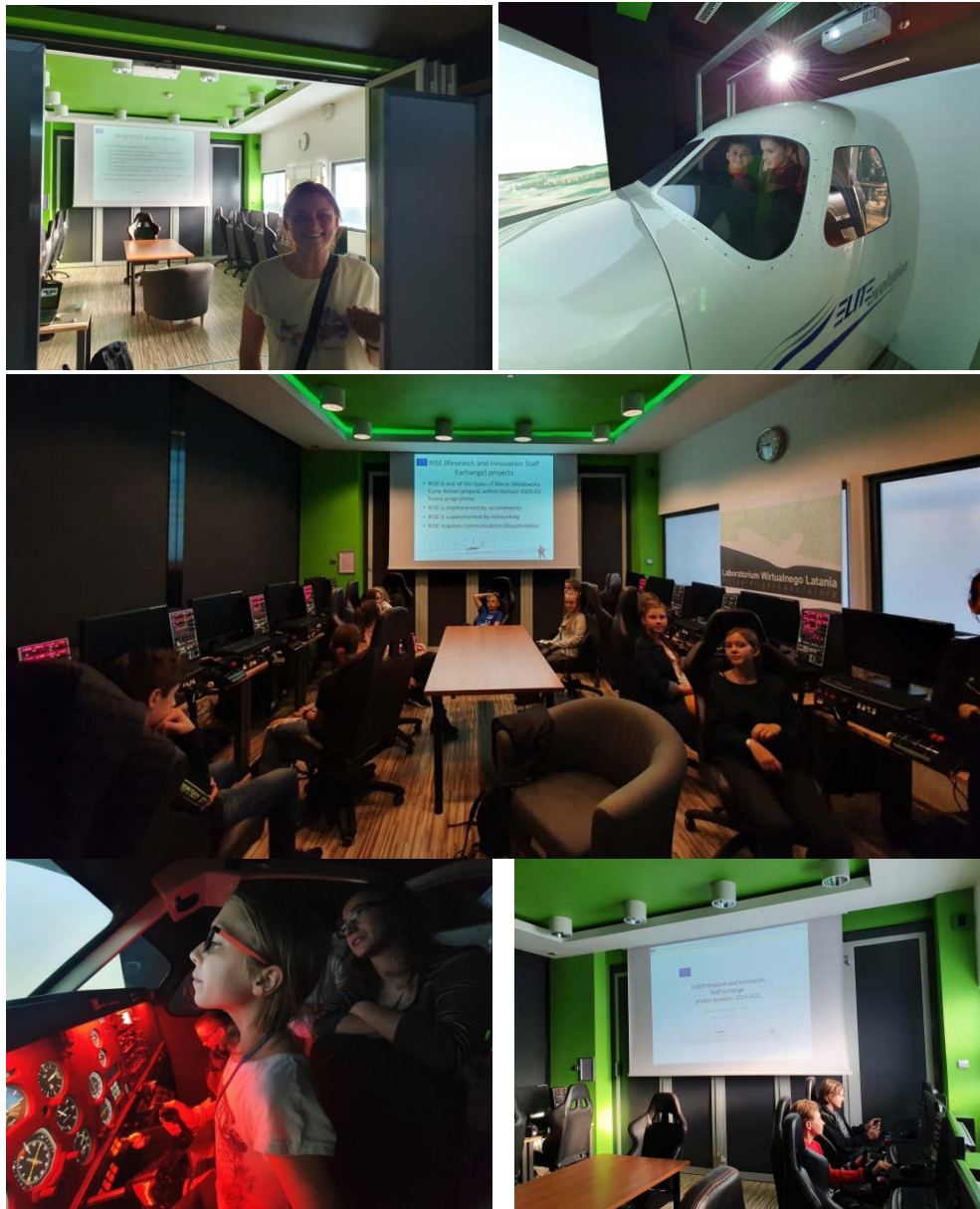


In the fall of 2019, the communication to a wide public has been performed during the Scientists' Night of the Silesian University of Technology 2019. In Virtual Flight Laboratory, the comprehensive information about the WrightBroS project has been given to over 40 participants at the age of 6 to 70 years, who learned learned to pilot flight simulators (see Figure 3).

After February 2020, due to outbreak of the coronavirus pandemic, we were not able to implement planned for year 2020 communication activities. Therefore, a number of dissemination/communication/networking activities planned for 2020, such as Competition for European students, 1st Biannual Workshop planned to be organized by VRM, and 2nd Thematic School planned to be organized by SUT by Month 22 has been postponed until next reporting period and have been organized when coronavirus situation allowed for efficient implementation.

A qualitative brief comparison of our experience in implementation of WrightBroS with three other similar projects we start with the project FIRST "virtual Factories: Interoperation suppoRting buSiness innovation". This is European H2020 project, founded by the RESEARCH AND INNOVATION STAFF EXCHANGE (RISE) Work Programme as part of the Marie Skłodowska-Curie actions. The project consortium includes five university partners and two industrial partners from Europe and China. As Boese et al. (2019) write, the RISE scheme used in the FIRST project, promotes international and cross-sector collaboration through exchanging research and innovation staff, and sharing knowledge and ideas from research to market (and vice-versa).

Figure 3. VFL during Scientists' Night of the Silesian University of Technology 2019



The next project we consider here is HYDRIDE4MOBILITY which is a joint effort of consortium uniting academic teams and industrial partners from two EU and associated countries Member States (Norway, Germany, Croatia), and two partner countries (South Africa and Indonesia). As given by Yartis *et al.* (2021), the work within the project is focused on the validation of various efficient and cost-competitive solutions including advanced MH materials for hydrogen storage and compression, advanced MH containers characterized by improved charge-discharge dynamic performance and ability to be mass produced, integrated hydrogen storage and compression/refueling systems which are developed and tested together with PEM fuel cells during the collaborative efforts of the consortium. Finally, let

us consider the project ADDOPTML “ADDitively Manufactured OPTimized Structures by means of Machine Learning” also belonging to the Marie Skłodowska-Curie Actions (MSCA) Research and Innovation Staff Exchange (RISE) H2020-MSCA-RISE-2020. Kallioras, Nordas, and Lagaros (2021) describe the deep learning based topology optimization developed in the project coordinated by Greek ETHNICON METSOVION POLYTECHNION and implemented in the consortium of as many as 12 other beneficiaries (6 from Academia, 6 from Industry) and a partner organization, a university from Jordan.

All three mentioned projects contain significantly more partners in their consortia than we have in the WrightBroS project. Despite this difference, in all them the composition of the consortium includes both academic and industrial partners collaborating on a common research topic through the exchange of the staff of participating organizations. Also, their methods to achieve technological goals, include activities focused on training of the seconded staff, networking and culture sharing which supplement (like in WrightBroS) research and development activities.

## Results

In this section we present the results achieved by collaboration of Higher Education with Industry in the WrightBroS project. It started in the premises of the industrial partner VRM with the Kick-off Meeting (Figure 4).

*Figure 4. Kick-off Meeting in the Premises of VRM, Trencin, Slovakia*



Regarding the training of the staff during secondments to SUT, the capacities offered by VFL were used in the project for implementation of the training of the staff from industrial project partners. The training took place on 24.11.2020 in Virtual Flight Laboratory at Faculty of Automatic Control, Electronics and Computer Science of the Silesian University of Technology, Gliwice, Poland. The secondees

from VRM to SUT was trained by SUT employee engaged in WrightBroS project who is experienced user of flight simulators. At one point of his career he was responsible for maintenance and service of such devices; he also finished postgraduate studies in the field of information systems in civil aviation. The trainer explained to the trainee a configuration of the simulator ELITE Evolution S812 installed at VFL. The trainee studied maintenance and service documentation (Figure 5).

*Figure 5. Studying Maintenance and Service Documentation in VFL by VRM Secondee*



After documentation analysis, the secondee was acquainted with the hardware (instructions on how the hardware is built, the configuration of the hardware layer of the simulator) as well as the software. Finally, he was seated in the simulator for the training in the following activities:

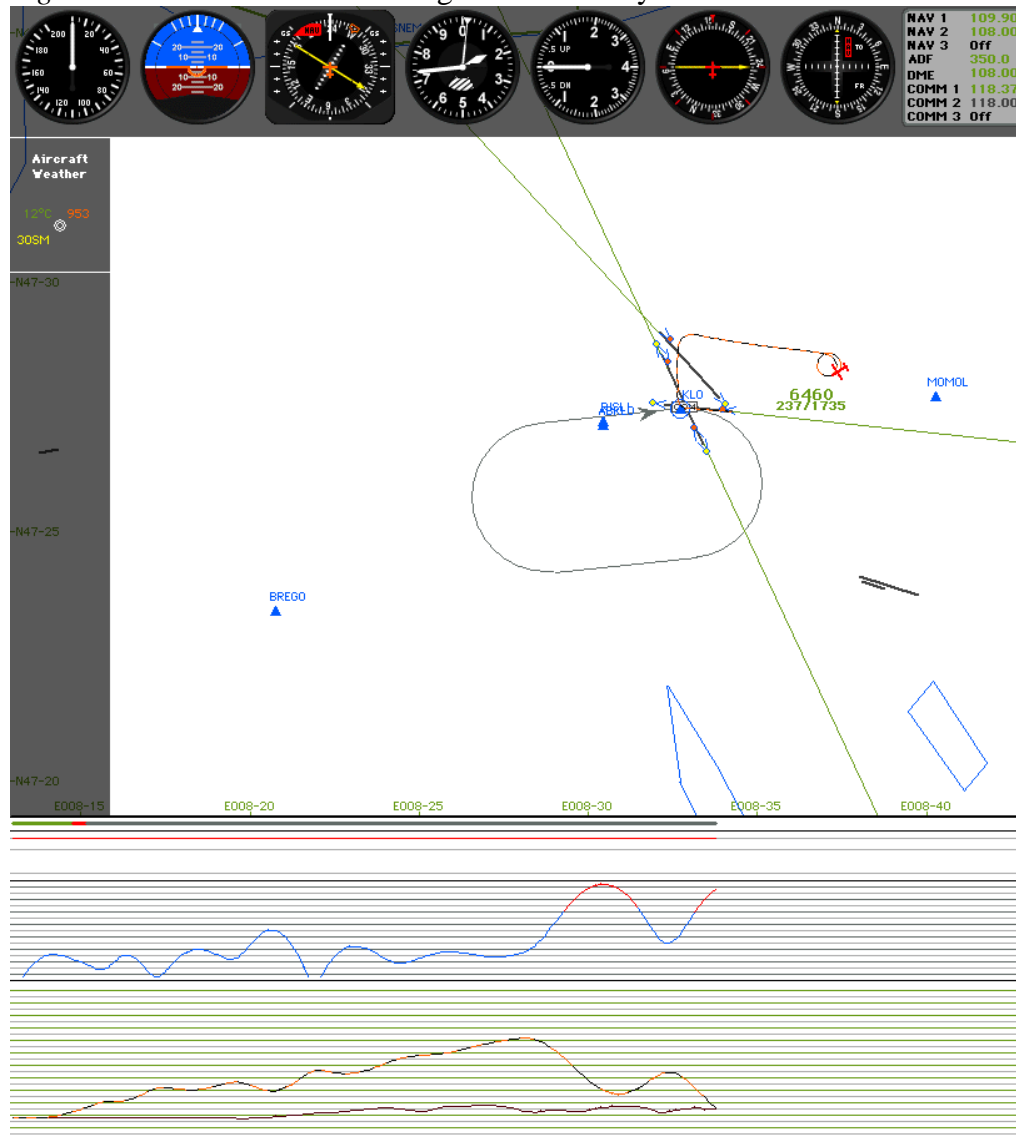
- Pre-flight check.
- Turn on of the plane systems/equipment.
- Take off.
- Manoeuvre of circles over the airport.
- Landing.

*Figure 6. Secondee from VRM in Elite FNPT II Flight Simulator at SUT VFL*



There were also trials of execution of above mentioned activities in bad weather conditions (weather and clouds). During these activities the simulator was configured as cockpit of Cessna 172 RG. Therefore, the corresponding settings were selected for simulation software. SWISSRV environment was selected which by default indicated to the area around Zurich Airport in Switzerland.

Figure 7. Results of the Virtual Flight Performed by the Trainee



Regarding the research and development collaboration it is important to focus on AR in flight simulators environment where AR glasses can be used. Therefore, two main approaches to the AR based on AR glasses were considered for the WrightBroS project. The first approach uses smart glasses, the second holographic goggles. Holographic goggles are intended for more immersive display, encompassing the whole three dimensional scene and enabling interaction with the scene contents – for example, it is possible to add new objects to the scene, or to occlude real

existing objects, to enclose objects with emphasizing virtual wrappings and to annotate them. All this requires such abilities as head tracking for localization and mapping of the environment – this task is jointly named SLAM (simultaneous localization and mapping) and requires depth mapping and is computationally intensive, therefore Microsoft built-up own compressors for deep learning tasks in HoloLens 2 goggles, whereas Magic Leap One employs NVidia GPU for the same purposes. On the other hand, smart glasses augments the reality close to the edge of the display presenting typically peripheral view of the scene. In this approach, abilities for interaction with the scene are quite limited. Typically these include position or head position tracking (IMU, GPS) and computer vision methods (such as QR codes detection). Taking in mind the capabilities, product availability, support from the vendor and the main development environments (such as UNITY or Unreal) the Microsoft HoloLens 2 goggles have been selected as the most appropriate device for the WrightBroS project (Figure 8).

*Figure 8. Certified EASA Pilot (VRM Staff) Wearing HoloLens 2 in the Simulator Cockpit*



Regarding the ethics, the fundamental principles of research integrity and the good research practices, have been addressed as described below.

The first fundamental principle (reliability in ensuring the quality of research, reflected in the design, the methodology, the analysis and the use of resources) has been addressed in the WrightBroS project by following the research work (including design, methodology, and use of resources) as it was described in Annex I of Grant Agreement (Description of Work).

The second fundamental principle (honesty in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair, full and unbiased way) has been addressed in the WrightBroS project by honest and unbiased reporting of

the results achieved during research works in internal reports, scientific deliverables and in papers submitted for independent review to a scientific journal.

The third fundamental principle (respect for colleagues, research, participants, society, ecosystems, cultural heritage and the environment) has been addressed in the WrightBroS project by promoting and achieving friendly atmosphere between secondees and staff of hosting institutions (in particular during networking events such as visit in Museum of Technology in Vienna or during the 1st Thematic School, but also during regular research duties). This friendly atmosphere positively influenced the effectiveness of the research and promoted in practical terms the rule of respect for colleagues coming from different research cultures (academic and industrial) and respect for cultural heritage (especially by mentioned above visit in the museum).

The last fundamental principle (accountability for the research from idea to publication, for its management and organization, for training, supervision and mentoring, and for its wider impacts) has been addressed in the WrightBroS project by following the envisaged organization of the project and by using its management structure composed of Scientific Committee. The management events have been organized as quarterly meetings of Scientific Committee. These meetings have assured effective supervision of the progress in research and constant open discussion on achieving its significant impacts.

Good research practices enumerated in European Code of Conduct for Research Integrity have been addressed among others by:

- regarding research environment: transparent practices in selection of researchers for secondments based on requirement of acceptance of the candidates by Scientific Committee using competence criterion,
- regarding training, supervision and mentoring: senior researchers and research leaders, in particular the Chair of the Scientific Committee, mentored team members, offered specific guidance and training to properly develop, design and structure their research activity
- regarding research procedures: taking into account the state-of-the-art in developing research ideas which have been explored in the WrightBroS project,
- regarding data practices and management: ensuring that access to data is as open as possible (by giving an open access to WrightBroS data on the webpage and as closed as necessary (for planned patent application),
- regarding collaborative working: taking by all beneficiaries responsibilities for the integrity of the research, as well as informing and consulting all beneficiaries about submissions for publication of the research results,
- regarding publication and dissemination: full responsibility of all authors for the content of a paper submitted for publication.

Regarding gender issues, the proportion of women and men among secondees achieved level of 40% for women and 60% for men. In the field of engineering, where a background strong disproportion towards women underrepresentation is

observed, such levels indicate success of the project in fostering equality of chances for both sexes.

Fostering respect for heritage of technical culture was achieved by organizing a visit in Museum of Technology in Vienna for SUT secondees in NXR (on 24th of July 2019). SUT staff seconded to NXR visited the Museum of Technology in Vienna, where such relevant for the history of aviation (and thus for the project) artefacts as the original airplane engine built by Wright Brothers could be seen (Figure 9a).

This museum was opened in 1918 and it aims to communicate technical principles to wide public. Its collection follows a "learning by doing" approach, and additionally historical exhibits, many of them unique, are showcased in their cultural context. Knowledge is transferred in an accessible, and sometimes even funny way, that makes it possible in an easy way to better understand principles standing behind many technologies. In the museum, SUT secondees had the chance to see not only the engine of the Wright Brothers, but also the Lilienthal's original storm wing model (see Figure 9b), which is one of five Lilienthal's gliders still in existence worldwide, and the only one of its kind. The other Lilienthal's gliders are to be found in London, Moscow, Washington, and Munich. During the trip, team of the project could discover, experience and reflect on history of the Wright flyer but also on different fields of technology and its history as well as to train new skills by performing many interesting experiments and by participating in interactive presentations. Additionally, it was a great opportunity to social integration and to know each other better.

*Figure 9. Visit in Museum of Technology in Vienna*



## Conclusions

In the paper the collaboration between Higher Education and Industry was illustrated by lessons learned in Horizon 2020 Research and Innovation Staff Exchange WrightBroS project. In the course of the project we identified many Industry and Academia collaboration challenges such as:

- Different research cultures.
- Different time-scales for achieving results.

- Mobility problems in COVID-19 era.
- Availability of staff ready to be seconded.
- Intellectual Property Rights of particular organizations in a common Consortium.

The paper presented how we dealt with them in order to maximize impact of Industry and Academia collaboration opportunities. These measures include:

- Transfer of theoretical knowledge from university to industrial environment.
- Training of university staff in practical skills on secondments.
- Return mechanism which assures usage of new skills in home organizations.
- Gaining added value of collaborative efforts.

Transfer of theoretical knowledge from university to academic partners we consider as essential factor which allows for common research work. Typically, industrial partners possess excellent skills regarding the domain they operate in, however in order to produce innovative products and market breakthroughs, often a broader theoretical knowledge from university is required. By RISE type project such knowledge is naturally transferred together with seconded from universities staff.

On the contrary, university staff is typically oriented on writing scientific papers but not on practical applications of the results of their research. Therefore, a contact with industrial environment given by RISE projects is an essential step towards learning academic staff the practical skills required for commercialization of their research results.

RISE projects assume also that the knowledge of practical skills gained by university staff is transferred to university other staff and incorporated in university procedures. This is done by the return mechanism and guaranteed by the legal rules included in the RISE program assuring that the home organization assimilates the seconded staff after the end of the project.

All these measures allowed us to gain added value of collaborative efforts. To achieve success we profiled our project by observing synergy in collaboration of Wilbur and Orville – the two brothers who, by a common passion, have changed the world. Academia and Industry by working in our project side by side in a common “Factory”, tries to commemorate the collaborative success of the Wright Brothers.

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## **Gadugi: Reclaiming Native American Education through a Culturally Reflective Pedagogy**

*By James A. Bryant, Jr.\**

The history of American Indian education has been one of colonialism and cultural erasure. From the first missionary educators who first came to the Indigenous nations of the Americas well into the twentieth century, Native children have been subjected to physical, mental and emotional abuse. This paper examines one program's efforts at reclaiming the educational process for American Indian children and youth through an immersive, culturally relevant and reflective pedagogy. The Gadugi Partnership is a dual enrollment collaboration between Appalachian State University and Cherokee High School that endeavors to use traditional Cherokee values and practices within the classroom to promote Cherokee culture, history, and language. With particular focus on the ancient Cherokee ideal of gadugi—service—I argue that this model of education holds promise for making formal education responsive to the needs of Cherokee youth, as well as allowing them the chance to practice and promote this ideal within their community. The Cherokee people have always valued education; it is time education value the Cherokee people. I will argue that the methods and approach of the Gadugi Partnership is a step in that important direction.

*Keywords:* indigenous education, history, culturally responsive pedagogy, Cherokee education, Gadugi, Native Americans

### **Introduction**

June 2, 2021, was a bright and warm day on the Qualla Boundary, the ancestral home of the Eastern Band of Cherokee Indians (EBCI) located among the picturesque Smoky Mountains in western North Carolina. The Tribal Council was running behind on the legislative agenda that day, and two Cherokee High School (CHS) students paced outside the chambers, waiting for their opportunity to make their presentation. The students were there for what was, in many ways, the culmination of what began as a service learning homework assignment in the college-level class they were taking. In many other, important ways, however, they were part of a much larger effort to make education among their EBCI community culturally respectful, relevant, and responsive. These two students, and the classmates they represented this afternoon, stood as examples of what indigenous education can be when it is thoughtful and intentional in its reflection of a Native community. Representing the Gadugi Partnership, these Native youth were shining a bright light on the potential for American Indian schooling to turn away from a brutal past and towards a hopeful and valuable future.

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\*Gadugi Partnership Director, Appalachian State University, USA.

### Historical Overview of American Indian Education

For more than a century, the menacing cloud of colonialism and cultural genocide hung like a specter over Native American education. The Indigenous peoples of the Americas presented a unique challenge to the Europeans who arrived—a challenge of philosophy, morality, economy, theology, and more. Indigenous ways of life such as matrilineal cultures and communal property “ownership” all stood in stark contrast to the tenets of the Western paradigm. In 1849, an author for the *Baptist Missionary Herald* condemned the American Indian for having “no chambers of commerce, no insurance companies, no banks, [and] no joint stock associations,” while also calling Euro-Americans to the work of teaching the continent’s Indigenous peoples “civilization and religion...art and science...learning, prosperity, and usefulness” (Berkhofer, 1965, pp. 8-9). In 1885, Massachusetts Senator Henry Dawes said of the Cherokee people, “They have got as far as they can go, because they hold their land in common...there is no selfishness, which is at the bottom of civilization” (Conley, 2005, p. 193). Indigenous communities were also condemned for their languages and religions. For Europeans, remaking the Native peoples they encountered became integral to the success of their colonizing efforts and the efforts to establish themselves in their “new world.”

As early as 1606, Europeans realized the power of education to mold Native children and, through them, to remake Indigenous societies. That year, the first royal Charter for the Colony of Virginia “commended the founders for their ‘desires for the Furtherance of so noble a work...in propagating the Christian religion to such People, as yet live in Darkness and miserable Ignorance’” (Reyhner & Eder, 2004, p. 25). For the Europeans, Christianity and the education of Native children were, in the words of Robert F. Berkhofer, “inextricably combined” (Berkhofer, 1965, p. 6). Christian missionary educators were the vanguard of colonialism, bringing with them a pedagogy of divine certainty that saw all aspects of Native life and culture as uncivilized and unworthy of preservation. One of the first missionary educators to come to the Cherokee Nation was the Moravian John Gambold. He was perfectly clear about his goals and the objectives of the school he and his wife, Anna Rosina, operated at Springplace. “[I]t seems desirable that their Language, Customs, Manner of Thinking, etc. should be forgotten,” he wrote in 1809 (McLoughlin, 1995, p. 68). Another missionary, the irrepressible Gideon Blackburn, described his work with Native children in this way: “...the savage [is] taken from the filth of the smoky hut, from the naked and untamed state of the heathen, and from the idols of the pagan world, [and] is brought to the habits and manners of civilized life” (McLoughlin, 1995, p. 71).

The objectives of colonial education also included divorcing Indigenous children from their families, who were deemed bad influences and obstacles to civilization. William G. McLoughlin wrote, “What is most striking about the Indian missionary enterprise was its extremely divisive impact upon the Indian communities... It did not trouble them that they turned...mission students against their parents” (McLoughlin, 2008, p. 39). Cyrus Kingsbury, an early nineteenth century Protestant missionary among the Cherokee, noted that, “The children

should be removed as much as possible from the society of the natives and placed where they would have the influence of example as well as precept” (McLoughlin, 2008, p. 63). A Catholic educator working on the Tulalip Reservation wrote about Native students that, “[They] must become as orphans, that is they must forget their parents as far as possible in order to abandon the habits of the Indians with less difficulty” (Reyhner & Eder, 2004, p. 123). This consistently corrosive model of education devastated Indigenous families and, indeed, entire nations. This outcome was, of course, the point.

One of the primary and most effective tools of this cultural genocide was the institution of the boarding school. Removing children from their families and communities, as Kingsbury had noted, allowed the missionary educators unfettered access to Native children without worry that their work might be undone or undermined by their families and traditions. These boarding schools were “the institutional manifestation of the government’s determination to completely restructure the Indians’ minds and personalities” (Adams, 1995, p. 97). The result of schools built on such ethnocentrism was “an institutional setting hegemonically oppressive in many of its features” (Adams, 2006, p. 57). These schools came to embody Richard Henry Pratt’s injunctive to “Kill the Indian, Save the man.” Pratt, who founded the Carlisle Indian school in Pennsylvania, was a firm believer in the uses of formal education as a means for erasing Indigenous culture. Samuel Chapman Armstrong, himself the son of Christian missionaries who had proselytized the natives of Hawaii, founded the Hampton Institute in April 1868 with an equally brutal outlook. In the acculturation process, Armstrong said, “Many Indians might die, but the severe training of real life...would probably result in creating out of the residue a people who would assimilate” with White America (Lindsey, 1995, p. 111; McLoughlin, 2008, p. 75). We can see the horrific mental and emotional anguish brought on by this philosophy through a letter written to Pratt by one of his students in 1881. Nellie Robertson, a young Sioux, disclosed, “I write this letter with much sorrow to tell you that I have spoken one Indian word...before I knew what I was saying, I found that I had spoken one word, and I felt so sorry that I could not eat my supper, and I could not forget that Indian word, and while I was sitting at the table the tears rolled down my cheeks. I tried very hard to speak only English” (Adams, 1995, p. 141).

Robertson’s grief is unsurprising, given that one of the major goals of Indian education was to inculcate within the Indian child a deep feeling of shame at their culture and heritage. Faculty and administrators at these institutions often faulted Native children for what they saw as “an excessive and largely unwarranted amount of racial pride” (Lindsey, 1995, p. 111). Booker T. Washington, who taught at Hampton, referred to one of his Indian students as a, “weak, dirty, ignorant piece of humanity” who, after his Hampton transformation, had become, “a strong, decent, Christian *man*” (Lindsey, 1995, p. 96). Whites were often appalled that Native people did not share this dim view of their people and did not see themselves and their cultures as inferior. “Europeans,” wrote McLoughlin, “were astonished to discover that the Indians considered their way of life far superior to that of the whites” (McLoughlin, 2008, p. 15). One such example was the Cherokee headman, Yonaguska. An influential leader of the deeply conservative, traditionalist Cherokee

who lived in the Northern Valley Towns of the Nation, Yonaguska was given a copy of the Gospel of Matthew by missionaries seeking permission to distribute the text to his townspeople. When asked what he thought of the book, the aging chief replied, “It seems to be a good book; strange that the white people are not better having had it so long” (McLoughlin, 2008, p. 12). Such ethnic pride could not be countenanced in a culture built on the premise of exceptionalism, and formal education was seen as the most efficient means of removing it from Native minds.

### **Twentieth Century Indian Education**

The abuse continued into the twentieth century. Prior to the passage of the Indian Child Welfare Act in 1978, “up to one-third of Native American children were being taken from their homes by private and state agencies, including church-run programs, and placed with mostly white families or in boarding schools” (Associated Press, 2019). Often the foster care system was as brutal as the formal school institutions, with one horrific example of an American Indian child “sent to live in Indiana with a Mennonite family who put bleach on her skin to lighten it, told her to say she was Armenian and kept her from communicating with her family” (Associated Press, 2019). American Indian Movement founder Dennis Banks recalled mournfully “the terrible day when the yellow bus arrived” to take him to school (Banks, 2004, p. 23). Banks boarded the school bus believing he was being taken to a nearby town, but instead found “they were taking us to Pipestone, Minnesota, a full two hundred fifty miles away. More than eleven years would pass before I would see my relatives again” (Banks, 2004, p. 25). Indigenous author and poet Tim Giago wrote of “getting that queasy feeling in late summer. I knew soon my dad would be packing us up and driving us to the boarding school” (Giago, 2006, p. 23). Schools were known throughout Indian Country to be institutions of oppression, and Native children bore the scars of these institutions for the remainder of their lives. “One cannot severely abuse children,” Giago wrote, “and not expect that these children would take that form of abuse into their adult lives...I believe that there is not a single generation [of American Indians] since the late 1800s that has not experienced the legacy of violence as victims of the boarding school” (Giago, 2006, p. 5).

With the rise of an American Indian civil rights movement and the renewed push for recognition of American Indian sovereignty, however, there was slow and steady progress in Indian Country towards reclaiming the purposes of formal education and asserting control over Native schools. Szasz notes that, “between 1933 and 1941 the number of day schools jumped from 132 to 226 and enrollment almost tripled. With 15,789 children in day school in 1941, more [Indian] children were attending day school than boarding school” (Szasz, 1999, p. 61). This shift to day schools was inspired more by a belief that American Indian children did not require a rigorous curriculum or preparation for any form of higher education than any newfound respect for Indian families, however, with Commissioner of Indian Affairs Jones believing, “day schools should be established at convenient places where [Indians] may learn enough to transact the ordinary business of life. Beyond

this in the way of schools it is not necessary to go” (Cahill, 2011, p. 224). Still, for many Indian parents it meant being able to provide their children with some schooling without being forced to surrender their children to boarding schools. Many of the changes and reforms that occurred throughout the twentieth century were inspired by the work of Dr. Lewis Meriam of the Brookings Institution, whose report on Indian education (known popularly as the Meriam Report) called for a re-thinking of the ethnocentrism that had been the centerpiece of Native schools since their earliest inception. The report bluntly stated, “The most fundamental need in Indian education is a change in point of view.”<sup>4</sup> In a remarkable shift, the report called for “the use of classroom material from the ‘local Indian life, or at least [from] within the scope of the child’s experience’” (Szasz, 1999, p. 23). In a further example of this radical departure, the report sought to end the view of Native parents and communities as obstacles to an Indigenous child’s education, noting that effective schooling for Native children would take, “...into consideration home and family life as an essential part of the process of educating the Indian.”<sup>5</sup> Throughout the tortured history of Indigenous education, Native parents and communities, “created or fought for a sense of self and community, often under tremendous duress” (Lowawaima & McCarty, 2006, p. 13). Following the Meriam Report, there was at least a modicum of cooperation in such self and community building from the federal government. Though the phrase was not yet in use, these changes suggested a need for culturally responsive education.

These small but important steps were built upon during the administration of Franklin D. Roosevelt and, particularly, his Commissioner of Indian Affairs, John Collier. Collier had been a lobbyist on behalf of the American Indian Defense Association before taking his post in government and was in charge of the Bureau of Indian Affairs from 1933 to 1945. In this position, he oversaw the Indian New Deal, a series of policies that sought to reform the Indian service and make it more responsive to Indian Country (Taylor, 1980, p. 17). The purposes of day schools also changed under Collier. Under the Indian New Deal, the government “subsidized the creation of 100 community day schools on tribal lands,” with the schools seen as engines of community revitalization rather than the belief that Indigenous children needed only the skills to become laborers for western whites (Rhodes, 2015). In 1930, W. Carson Ryan became the Director of Indian Education in the federal government, a position once described as “the most challenging position in the American school field” (Szasz, 1999, p. 29). Reflecting the new direction the government was taking, Ryan remarked, “We make no secret of the fact that we hope to eliminate gradually practically all the Government boarding schools” (Szasz, 1999, p. 31).

The Post-World War Two era saw a resurgence in Indian pride, and in this time American Indians began to demand not merely a say, but genuine control over their own schools and the curricula that would impact and inform their

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<sup>4</sup>Meriam Report: The problem of Indian Administration (1928), p. 346. Available at: [https://narrf.org/narrf/documents/merriam/n\\_merriam\\_chapter9\\_part1\\_education.pdf](https://narrf.org/narrf/documents/merriam/n_merriam_chapter9_part1_education.pdf).

<sup>5</sup>Meriam Report: The problem of Indian Administration (1928), p. 349. Available at: [https://narrf.org/narrf/documents/merriam/n\\_merriam\\_chapter9\\_part1\\_education.pdf](https://narrf.org/narrf/documents/merriam/n_merriam_chapter9_part1_education.pdf).

children. The paternalism that had characterized so much of Indian education became unacceptable. Attitudes that permeated the federal government's approach to Indian children, parents and families found concerted pushback from the communities. The 1969 Subcommittee Report on Indian Education, also known as the Kennedy Report, called the federal government's Indian education policies, "a national tragedy and a national disgrace" (US Government Printing Office, 1969, p. x). Indian Country agreed, and a groundswell of protest and activism would begin to redefine Indian schools. Della Warrior noted that it was "grassroots people—people from local communities—[who] served as the catalysts for change" (Warrior, 2007, p. 291). Much of this change is reflected in a blizzard of federal legislation that loosened the government's control over Indian schools, including the "Indian Education Act, the Indian Self Determination and Education Assistance Act, and the Tribally Controlled Community Colleges Act." In 1975, Santa Fe Indian School had become the first Indian contract school "...[and was] responsible to the All Indian Pueblo Council" (Szasz, 1999, p. 217). By 1987, "only ten percent of all Indian children in school were enrolled in BIA [Bureau of Indian Affairs] schools" (Szasz, 1999, p. 214).

### **Education and Eastern Band of Cherokee Indians Education**

The Eastern Band of Cherokee Indians (EBCI), located on the Qualla Boundary in western North Carolina, were included in both the tragedy and the transformation of Indian education. The Qualla Indians, as the EBCI were originally known, were located in the far northern section of the Cherokee Nation, in a region known as the Valley Towns. Led by men like Yonaguska, Euchella, and Junaluska, the Qualla Cherokee were among the most isolated and the most conservative of the Cherokee, holding fast to traditional ways and being slow to adopt the ways of the English and, eventually, Americans, who increasingly surrounded them. These Cherokee avoided the loss of their homeland during the Removal era thanks in part to treaties with the United States negotiated in 1817 and 1819 and, mostly, due to their location within the North Carolina mountains and the notion that this land, unlike the fertile grounds of their brethren located in Georgia and Alabama, was virtually useless for development. They were reluctant to send their children to mission schools, though some of these Cherokee, such as Atsi (known to the whites as John Arch), would avail themselves of mission education. The mission schools that were established in this area of the Cherokee Nation were operated primarily by the Baptists, a Protestant denomination with a strong following in western North Carolina and east Tennessee. In 1821, the Reverend Henry Posey of Ashville, North Carolina, established a mission school in the Valley Towns. He was accompanied by Thomas Dawson, a Kentucky Baptist who was also a trained educator "well acquainted with the Lancastrian mode of instruction" (McLoughlin, 1990, pp. 21-23). By far the most effective and influential mission educator during this early stage of formal education among the Qualla Cherokee was Evan Jones, also a Baptist. Jones was a Welsh immigrant who came to America in 1821, just as the Baptist experiment with Cherokee

schools began. He threw himself into the work, learned the Cherokee language, and accompanied the Cherokee along the Trail of Tears. He reestablished schools in Indian Territory and continued his work there for another four decades before dying on August 18, 1872, and being “buried in the graveyard in Tahlequah near many of the Cherokees he had served for so long” (McLoughlin, 1990, p. 443).

Following Removal, the Cherokee who remained in the East were left in a vulnerable and undefined position. The state of North Carolina did not even recognize the EBCI as a distinct Indian community until July 27, 1868—three decades after Removal (Godbold & Russell, 1990, p. 135). The EBCI were also confronted with an educational vacuum. William Holland Thomas, the adopted son of Yonaguska, was concerned with the lack of available schools for the Cherokee. Thomas was a Democrat and a reformer who would serve in the North Carolina legislature from 1848 until the outbreak of the Civil War, and as Principal Chief of the Cherokee until 1867. As a legislator, Thomas “believed that a good system of public education was essential,” and he included the Cherokee in this formulation (Godbold & Russell, 1990, p. 69). John R. Finger wrote that Thomas, “diligently sought to establish schools among the Indians, but the best he could do was obtain the services of an occasional itinerant teacher who might stay for a few months” (Finger, 1984, p. 65). This situation remained for the Cherokee until the Quakers began a network of day schools in 1881—nearly half a century after Removal. During this era, day schools operated in the communities of Big Cove, Soco, Birdtown and Snowbird.<sup>6</sup> Quaker Thomas C. Brown was named the first superintendent of this school system, setting the tone early by hiring “experienced teachers who...quickly proved their worth” in what was “the real beginning of educational progress” for the Qualla Cherokee (Finger, 1984, p. 138). That same year, in addition to the day schools, the Quakers opened a boarding school in the community of Yellow Hill. Known as the Cherokee Training School, the Quakers operated the school for its first twelve years through a contract with the Cherokee. In 1896, the school came under the supervision of the federal government (Newland, 2022). Of his time attending the school, Cherokee Beloved Man Jerry Wolfe recalled, “I went to Cherokee Boarding School when I was eight years old in 1932. I was always very uneasy and uncomfortable at school. It made me feel uneasy in my skin. There were always moves made and words said for no reason at all, except that we were American Indian. There was always a fright in your soul because you were afraid to defend yourself and your culture...You really got punished for speaking the Cherokee language... even being suspected of speaking Cherokee. You really got a whipping ... I felt tight in my shoulders for so many years (because of the experience). It was like walking on eggshells. I was a grown man before I let the tenseness go away, before I could open up” (McNeil, 2022).

In 1892 the federal government took over the operation of all Cherokee schools, a situation that would continue into the middle of the twentieth century. The new superintendent, Andrew Spencer of New York City, took charge, to be followed by Thomas W. Potter, Julian W. Haddon, and Joseph C. Hart (Finger, 1984, p. 162). The objectives of each of these superintendents was, “to maintain and

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<sup>6</sup>History of Cherokee Central Schools. Available at: [https://www.ccs-nc.org/apps/pages/index.jsp?uREC\\_ID=373900&type=d&pREC\\_ID=851868](https://www.ccs-nc.org/apps/pages/index.jsp?uREC_ID=373900&type=d&pREC_ID=851868).

improve the Indian schools, and to serve as symbols of federal authority over the” North Carolina Cherokee (Finger, 1984, p. 162). This relationship between the Eastern Band of Cherokee Indians and the federal government continued into midcentury, when the era of Termination began first under the Truman administration and then continued with the Eisenhower administration. The boarding school closed in June, 1954, sending EBCI children into the midst of a new round of political fighting and maneuvering. Though the remaining day schools and their small facilities were considered as insufficient for the education of the community’s young, the question of where they might attend school was a difficult one, with “considerable opposition to accepting phenotypical Cherokees in [area white] schools because of past frictions, the Band’s tax immunity, and resentment over the recent landmark supreme court decision of *Brown v. Board of Education of Topeka*” (Finger, 1991, pp. 130-131). For the next eight years EBCI schools were underfunded and EBCI parents were forced to send their children to the off-Boundary public schools when they could. Finally, in 1962, the day schools were closed and a central elementary school was opened on the Boundary. Thirteen years later, in August 1975, a new high school opened for EBCI youth.

### Public Law 100-297 and Beyond

The true sea change for the education of EBCI children came in the early 1990s. In the spring of 1988, the US Congress passed Public Law 100-297. This legislation reauthorized the Elementary and Secondary School Act, but it also provided local schools—including tribal schools—a degree of autonomy that would have been unthinkable in Indian Country a mere generation before. The law allowed Native school systems to apply for grants from the federal government that they, in turn, used to operate their own schools. The law removed much of the control and power from the Bureau of Indian Affairs, a government entity “perceived by Indians and non-Indians alike as an inefficient, overly bureaucratized, paternalistic organization,” according to Snyder-Joy (1994, pp. 20-34). In 1990, Cherokee Central Schools was led by the indomitable Joyce Conseen Dugan, a strong advocate for Indian educational reform and for tribal sovereignty over what and how Indigenous students were taught. Under her visionary leadership, “On August 1, 1990, Cherokee Central Schools became a tribally operated school.”<sup>7</sup> Echoing Snyder-Joy, Dugan later remarked that the EBCI community, “took over the school system as a tribe...because the [federal] government just shouldn’t run schools” (Bryant & Bryant, 2013). On September 7, 1995, Dugan was elected the first female Principal Chief of the Eastern Band of Cherokee Indians after her transformative stint as director of Cherokee schools. Education remained a high priority for her time as Principal Chief, and she remarked that she carried, “a strong desire to ‘put culture back into the Cherokee school system’” (Carney, 2005, p. 148). Indeed, Dugan called this goal “one of her primary incentives for running” for the position of Principal Chief (Carney, 2005, p. 148).

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<sup>7</sup>History of Cherokee Central Schools. Available at: [https://www.ccs-nc.org/apps/pages/index.jsp?uREC\\_ID=373900&type=d&pREC\\_ID=851868](https://www.ccs-nc.org/apps/pages/index.jsp?uREC_ID=373900&type=d&pREC_ID=851868).

### The Gadugi Partnership

The Gadugi Partnership launched in the fall of 2013 as a dual enrollment program between Cherokee High School (CHS) and Appalachian State University (ASU), a four-year institution located in Boone, North Carolina. This beginning was preceded by more than 6 years of community involvement, meetings, and listening sessions that were undertaken throughout the EBCI community and with numerous stakeholders and groups to insure that Gadugi would be founded upon, “a pedagogy...forged *with*, not *for*, the oppressed...in the incessant struggle to regain their humanity” (Freire, 2000, p. 48). Cherokee Central Schools school board voted to approve the partnership on April 8, 2013, and the first cohort of 11 students were enrolled in August of that year, with 6 more students enrolling in the spring class (Bryant, 2014, p. 4). There are three courses taught through the program: *Education and the Eastern Band of Cherokee Indians*, which is taught each fall; *Cherokee Culture and Leadership*, which is taught each spring, and *The Cherokee Nation in the Era of Removal*, a course taught during the summer. Each of the programs’ courses is offered to juniors and seniors at CHS and is taught through a hybrid of online and in-person instruction at CHS. Each course provides three hours of college credit that may transfer to any university or college. Each of these classes was designed specifically for CHS students, with the purpose of augmenting the work already being done at the high school to preserve and promote EBCI heritage, history and culture. An overarching goal for the program and for each class and every assignment is to provide for the CHS students involved a genuinely culturally responsive classroom experience. For the partnership’s purposes, we may think of culturally responsive teaching as, “using students’ customs, characteristics, experience, and perspectives as tools for better classroom instruction” (Will & Najarro, 2022). Gadugi seeks “to meet the educational needs of culturally diverse students by recognizing that their cultural knowledge is worthwhile” (Garcia & Ahler, 1988, p. 20). As discussed earlier, too often American Indian education has been little more than cultural genocide, and even when educators and policy makers have had the best of intentions, too often teachers “have undervalued the potential for academic success among students of color, setting low expectations for them and thinking of cultural differences as barriers rather than assets to learning” (Will & Najarro, 2022). Reclaiming the classroom for EBCI youth is part of the mission of the Gadugi Partnership, and best practices within the program recognizes that integrating a culturally relevant and responsive pedagogy and curriculum can have long lasting effects, including, “strengthening students’ sense of identity, promoting equity and inclusivity in the classroom, engaging students in the course material, [and] supporting critical thinking” (Burnham, 2020). Reclaiming the classroom will also lead to revolutionizing the educational system in which Native children learn. American Indian youth “have some of the worst educational outcomes of any marginalized group in the U.S.,” a situation compounded and caused by the chasm between the community and the classroom (Schwartz, 2016).

The partnership's mission statement says in part that the program, "strives to prepare, support and sustain the future leaders of the Eastern Band of Cherokee Indians through coursework, service, and cultural immersion."<sup>8</sup> The name for the partnership—*Gadugi*—was chosen in consultation with students, tribal community members, and EBCI elders and stakeholders. The word *gadugi* means a, "community service organization...or free labor company, whose origins go back to aboriginal times. Among the Eastern Band, the *gadugi* was a group of people from a community who organized communal labor, mostly relating to the cooperative planting and harvesting of every family's crops and assisting people during times of illness or death" (Neely, 1991, p. 35). It was this ethos of service that the partnership has always sought to emulate and encourage. A review of the program's first year noted, "Our goal here at Appalachian State will be to do everything within our power to provide [CHS students] the opportunities and tools to grow and learn so that, like the *gadugi*, our Cherokee graduates can return to their community to make a difference in the lives of family, friends, and, indeed, their nation" (Bryant, 2014, p. 8).

### **Cherokee Culture and Leadership**

This ethos is best captured in the *Cherokee Culture and Leadership* class offered each spring at CHS. The course description sums up the class in the following way: "This course will examine the ideal of leadership within the Cherokee Nation and the many different forms it has taken. Through in-depth analysis of biographies of leading Cherokee men and women as well as through the study of cultural norms and standards, students will examine what it means to be a Cherokee leader. The class will examine issues in Cherokee history and how the people responded, as well as current issues and trends and how they may be called upon to lead. The course will include a service project that will be student-directed and implemented with help from the instructor as well as other community stakeholders" (Bryant, 2021). The enumerated goals for the course are to "Understand the struggle for tribal sovereignty [and] survival...Become familiar with the men and women who have contributed to the progress of the Cherokee Nation...Examine what it means to be a leader within Cherokee society, both from a historical and a sociological perspective...Develop an understanding of their own leadership strengths and weaknesses as well as a plan for growth in this area," and, most importantly for this paper, students are asked to, "Identify an area of need; design and implement a viable service project to address this need/issue" (Bryant, 2021).

In keeping with the ideals and spirit of *gadugi*, the capstone for the class is this service learning project. The project is student-driven; the students select the service area and the approach with support from the instructor. This element of the project is of the utmost importance because, as Cummins has written, "Students can become empowered only when education becomes a true community

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<sup>8</sup>Gadugi Partnership mission statement, 2022.

enterprise” (Cummins, 1988, p. 7). The service project itself is heavily influenced by the reflective practice of Paulo Freire, who argued for a pedagogy “that favors the autonomy of the students” and that takes into careful consideration the life experiences of the students and their community (Freire, 1998, p. 21). The service project is introduced to the students on the first day of class.

In Spring semester 2021 (January-May), there were six CHS students enrolled in the *Cherokee Culture and Leadership* class. The first two weeks of the class were spent discussing the meaning and examples of culture, including syncretism and cultural conflicts across the world. These discussions were followed by an introductory lesson on the role and transformation of Cherokee culture over the centuries, including the colonial education efforts to eradicate elements of Cherokee culture that were deemed “uncivilized” or “heathen” by Europeans. The students were then reminded of the role of gadugi in traditional Cherokee culture and its place in modern EBCI communities. The lesson before beginning the service project is devoted to the discussion of the concept of gadugi that took place at the Research Foundation for Governance in India in August, 2010. There, a public debate took place centered around “Gandhi and Gadugi: Traditional Indigenous Views on Service and Community” (Research Foundation for Governance in India, 2010).

At this symposium, Professor Michael Morris of the University of New Mexico taught Indian scholars about gadugi and defined it as, “to work together to solve common problems in society” (Research Foundation for Governance in India, 2010). In particular, Professor Morris noted, “some of the current leaders of the Cherokee, particularly the Cherokee youth and gave an example of ‘gadugi’ in practice; that to provide a community with clean water a pipeline was planned, but instead of just building it through already existing villages without their permission, the families all worked together on their respective parts of the line” (Research Foundation for Governance in India, 2010). Students were informed that, though more than 8,000 miles separate the Qualla Boundary from India, scholars there argued that the ancient Cherokee ideal of gadugi could be used to rescue and reinforce the meaning of Gandhian philosophy for Indian youth. The purpose of this discussion is to remind these EBCI youth that the ideal of gadugi, while traditional in every sense of the word, has power and meaning in the twenty-first century. This approach echoes Dewey, who wrote, “A knowledge of the past and its heritage is of great significance when it enters into the present, but not otherwise” (Dewey, 1916, p. 75). Thus reminded that Cherokee principles are studied by and inspiring to different nations and cultures around the world, students are asked to begin preparing for their own practice of gadugi.

### The Blue Light Initiative

The students in the class identified the illicit use of illegal drugs within their community as a pressing area of need and one to which they wanted to dedicate their service work and project. The Qualla Boundary is not the only Indigenous community struggling against drug abuse. Statistics show that, “While Native Americans account for only a small part of the U.S. population, these people experience much higher rates of substance abuse compared to other racial and ethnic groups,” including having, “the highest methamphetamine abuse rates, including past month use at more than 3 times the rate of than any other group. They are also more likely to report drug abuse in the past month (17.4%) or year (28.5%) than any other ethnic group” (American Addiction Centers, 2022). In 2016, a Boundary resident told the *Cherokee One Feather*, “On a weekly basis, I find numerous needles on Old No. 4 Road...It’s disgusting. I don’t even allow my kids to play in the front yard in fear of them, or my dog, stepping on a dirty drug needle. Our community needs help” (Mckie, 2016). In 2019, EBCI leaders installed 17 kiosks around the Boundary for the disposal of used syringes in the hopes of keeping them from public areas, including areas such as playgrounds frequented by EBCI children and youth. The EBCI Secretary of Public Health and Human Services assured residents that the kiosks, “don’t have cameras in them. You’re not going to be prosecuted if you’re seen using them” (Mckie, 2019). The rising drug use and the concurrent rise in hepatitis C infections led the EBCI to create the Tsalagi Public Health Syringe Services Program in 2017—a needle exchange program offering “a variety of public health services, resources, and supplies to participants” (Centers for Disease Control and Prevention, 2020). When the program was approved by Tribal Council, Painttown Rep. Tommye Saunooke remarked, “Everyone in here is going to be affected by someone or somebody that you know that’s an addict. So, we need to accept that and help them all that we can” (Mckie, 2017).

With this crisis as the backdrop, Gadugi students chose to focus on another aspect of the drug issue—the use of illegal drugs in public spaces across the Boundary. One of the CHS seniors enrolled in the class took the initiative and educated her peers on the use of “blue lights” in public spaces around the country that worked to “mask the blue-tinted lines of veins—making it harder for intravenous drug users to find a vein” and, therefore, harder to inject the drug (Winberg, 2019). The class agreed that their project would involve researching the use of blue lights, including positive and negative data on the efficacy of their use, costs of installation and maintenance of blue lights, and the experiences of other communities who had installed blue lights. After the completion of the research, and if the data proved to be promising, the class wanted to prepare a presentation on the use of blue lights and, if possible, present the information to community stakeholders. Students spent months looking into the different companies that manufactured the lights, finding anecdotal and statistical data on the light’s effectiveness, and preparing their presentations. They prepared price comparisons and compiled news reports from communities that had experimented with the use of the lights in public spaces. Each student in the class prepared his or her own

presentation for the class, and, later, the information from each was synthesized into one presentation.

On May 17, 2021, the students made their presentation to Mr. Bo Crowe, an EBCI Tribal Council representative for the community of Wofltown/Big Y. Councilman Crowe was duly impressed with the students' work, and with their passion for and commitment to their community. After their presentation, Councilman Crowe contacted the EBCI Attorney General and provided the students with assistance in turning their service project presentation into actual legislation for consideration by Tribal Council. The class spent an afternoon working with tribal attorneys to craft appropriate language for a resolution asking Council to implement their recommendations. For these six students, the project progressed from homework to proposed law in a matter of hours.

After the proposal was completed and written in the proper form for Council's consideration, Councilman Crowe placed the newly-dubbed Blue Light Initiative on the official agenda for Tribal Council's June 2 meeting. Two of the students presented the proposal to Council. The legislation was first read to council, and this was followed by a question and answer period. The students deftly and thoroughly answered all the questions. Both young women were well prepared and articulated both the need for the initiative and their hopes for its success. Council members congratulated both students on their work and the thoughtfulness of their presentation. Prior to taking a vote the resolution was amended to expand the lights into more public areas of the Boundary than the class had originally proposed. After a brief discussion, EBCI Tribal Council voted unanimously to fund the project.

## Conclusion

The Gadugi Partnership was founded on the notion that it was both possible and imperative to reclaim formal education for EBCI children and youth. Too often, formal schooling has been used as a weapon of colonization against the Indigenous peoples within the United States. Though the tools of education have been employed to bludgeon the culture of American Indians, education itself remains a necessary requirement for modern life. In the words of noted Crow Nation leader Plenty Coups, "Education is your most powerful weapon. With education you are the white man's equal; without education you are his victim" (Garcia and Ahler, 1988, p. 15). The education offered, however, is most effective, is most powerful, is, indeed, most *moral*, when it reflects and respects the values of the community in which it is offered. American Indian educators and schools must, "represent the cultural values, experiences, and aspirations of the populations being served" (Garcia and Ahler, 1988, p. 23). In the words of W.E.B. DuBois, education should be "a drawing out of human powers," not merely the transmission or insertion of the values of the majority, mainstream society (DuBois, 1973, p. 9).

The program is best encapsulated by the service project that is part of the curriculum in the *Cherokee Culture and Leadership* course offered each spring semester. The 2021 project, the Blue Light Initiative, saw Cherokee High School

students confront a daunting challenge facing the Eastern Band of Cherokee Indians community. The 6 students immersed themselves in research about drug dependency and proven ways to confront and combat this issue. Rather than becoming overwhelmed by the scope and size of the problem, these EBCI youth took a strategy for fighting back to their elected tribal government and successfully made an impact for their people. Freire reminds us that “cynicism is not the weapon that will rebuild the world,” and these Cherokee young people refused to give in to cynicism but, rather, worked to improve the lot of their brothers and sisters (Freire, 1996, p. 161). To assure that formal education may be an engine for the renewal of Indigenous cultures and communities, the classroom must reflect the collected wisdom, traditions, and accomplishments of Indigenous people. The Gadugi Partnership, and the Blue Light Initiative which it spawned, strives to do just that.

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## **The Bologna in the Field of Social Sciences and Humanities: A Precondition for Successful University Education<sup>1</sup>**

*By Jelena Osmanović Zajić\* & Jelena Maksimović<sup>±</sup>*

The Bologna Process represents the most significant extensive reform of higher education in Europe. The particular aspects of the Bologna Process still incite critical evaluations as regards the successfulness of its implementation. The theoretical part of the paper analyzes the fundamental principles defined in the Bologna Declaration, requirements and critical views of the Bologna Process, as well as the relevant research conducted on this issue used for the comparative analysis. The introduction of the Bologna Process into the Serbian university education has initiated numerous changes, the increase of the student mobility being the most striking one. The empirical part of the paper focuses on the study of the following problem: the manner in which students of social sciences and humanities perceive the Bologna Process fifteen years after its implementation into the Serbian university education. Consequently, the subject matter of the research is the observation and description of students' attitudes to this phenomenon with the purpose of acquiring relevant information "firsthand". The achievable objective of the presented research reviews the context and condition of the Bologna Process during 2019/2020 academic year and its feasible improvements, which can contribute to comparative study of similar researches in the time of the pandemics. The specific research tasks include the study of the Bologna requirements, attitudes to the Bologna Process, benefits and restrictions of this reform, and particularly the attempt to suggest the improvement of the Bologna Process realization from the perspective of students of social sciences and humanities. The research sample consisted of the Bachelor students of social sciences and humanities from the Faculty of Philosophy in Niš (N=150). The survey technique and the scaling technique with a rating scale questionnaire were used (BOL-JM-JOZ). The questionnaire had five closed-ended questions, while the Likert scale was comprised of 23 items. The test of the instrument consistency proved its reliability. The obtained results were shown by the chi square test, which proved a statistically significant difference in the respondents' answers as regards the year of study,  $p < 0.05$ . The main factors were extracted from the assessment scale by the application of the factor analysis. These factors examined the students' perceptions of the Bologna Process, comparing the answers provided by the students of the first, second, third and fourth year of study of social sciences and humanities,  $p < 0.05$ .

*Keywords:* Bologna, present state of affairs, perspectives, perceptions, students

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\* Assistant Professor, University of Niš, Serbia.

<sup>±</sup> Professor, University of Niš, Serbia.

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## Introduction

Serbian higher education has undergone various and substantial changes. The latest changes have been induced by the Bologna declaration which, along with other documents pertaining to the higher education reforms in Europe, constitute the Bologna Process. The first associations are series of changes, related to both educational materials and organisation, occurring in the educational system of a country that aspires to be included into the European educational framework standard. The Bologna Process is the term used to designate the reforms in the European higher education. Its goal is the establishment of the European system of education, promotion of students' and teachers' mobility and accomplishment of higher education based on common criteria and methods. The adoption of the Bologna declaration was followed by various reactions in our country. Some scholars supported it, thinking it would improve the Serbian higher education, others opposed it in the belief that it would ruin our university education, while still others refused to declare their opinions openly. The Bologna Process is significant in that it aims at improving higher education and consequently the quality of studying in accordance with the contemporary social reality. The adoption of the Bologna Process entailed the implementation of certain novel features into the Serbian higher education.

They are regarded differently. Some of these features are the following: introduction of three cycles of higher-education qualifications, evaluation of academic courses, students' mobility, altered teaching methods. The Bologna Process requires students' continuous engagement, i.e., they are obliged to participate actively in classes throughout the academic year. Considering the fundamental requirements of the Bologna Process and the differences between the new and the old higher-education system, there are evident the differences in students' opinions and their attitudes towards studying. The attentive and diligent students, accustomed to persistent acquiring of knowledge, find the Bologna Process rather convenient, unlike their less industrious colleagues, who think it quite unsuitable.

The Bologna Process has two main advantages in comparison to the old higher-education system: it is the student-centered education, which reduces the potential flaws of the old system of university studying and makes it more vibrant, and it is based on the European university framework that facilitates employment after graduation.

The following are certain problems that might occur: insufficient space for teaching, insufficient number of universities teachers, a large number of students in comparison to the number of teachers and facilities, insufficiently developed student body, inadequate use of human, financial and infrastructural resources.

The reform of the European higher education started with the adoption of the Sorbonne declaration in 1988 and was further intensified by the signing of the Bologna declaration in 1999. The main goal of the reform was the creation of the common European framework of knowledge. This represents a dynamic and intricate process since it involves both globalisation and the preservation of national culture, tradition and identity of each of the signatory states. It is essential

to respect equality and to become part of Europe and the world, to accept European values and principles, but to preserve and retain one's own national traits and values at the same time. Thus established, these goals can be achieved only by strengthening intellectual, cultural, social, scientific and technological dimensions in Europe, with the central part occupied by university institutions (Lungulov, 2011, p. 612). Accepting the Bologna Process and ratifying the Bologna Convention on equalising higher-education qualifications in Europe, Serbia declared its decision to adapt its higher education to the general principles prescribed by European universities (Babin, Hiršenberger, & Papić, 2012). The Serbian universities accepted wide and demanding reforms in terms of the reorganisation of studies with the purpose of improving the higher-education quality and developing it in accordance with the European educational standard. The changes were related to each aspect of university education – its organisation and management, changes of course curricula, continuous quality control, modernising teaching methods, upgrading teaching materials and textbooks and increasing students' engagement in classes (Lungulov, 2011, p. 612). Also, one of the goals was to overcome rigidity and conventionality of the education system still unprepared to embrace substantial changes.

Serbian universities began to implement reforms but have been encountering various problems ever since. Reference materials display opposing views of the acceptance of the Bologna declaration and university-education reforms. Unlike European universities, the Serbian universities are relatively loose associations of faculties (Turajlić, Andrejić, Rudić, & Todorović, 2004). Serbian higher education started the reforms unprepared for them, without clearly defined laws, precisely determined graduation degrees, university teachers willing to accept changes, sufficiently informed employers, etc. However, the basic deficiency appears to be the static and strict norms which are difficult to change and adapt to altered social conditions. Therefore, with the standards not following the social needs, higher education has never been stimulated to adapt to new circumstances, to include new knowledge into their study programmes and improve quality in general.

European institutions of higher education have undertaken the task of creating the European framework of higher education. The Bologna declaration was signed by the ministers of education of several European countries in 1999. This act started the Bologna Process, whose goal was the creation of the common European system of university education up to 2010, with the preservation and respect of national diversities (cultures, languages, traditions, etc.). It was the beginning of the creation of a flexible and efficient higher-education system of Europe, competitive in the global market of knowledge. The practical realisation of this idea assumed the following goals (Zečević, 2010, p. 81):

- The system of comprehensible and standardised academic degrees and diplomas.
- The system based on two education cycles – undergraduate (bachelor) studies and postgraduate (specialist, master and doctoral) studies.
- The European Credit Transfer and Accumulation System (ECTS).
- Promotion of students' and teachers' mobility.

- The recognition of degrees obtained in other countries.
- Promotion of the European dimension in higher education.

The Bologna declaration supports the idea that higher education should contribute to further European integrations, raise consciousness of common values and shared social and cultural space, facilitate mobility and employment of European citizens, enhance the global recognition and acknowledgment of the European higher education (Petković & Antolović, 2010, p. 198). This can be achieved by the coordination of educational policies of various countries, the adoption of the system of verifiable learning outcomes, the introduction of the ECTS, the adoption of the framework with three cycles of higher-education qualifications and a larger engagement of students into learning and teaching. The Bologna Process has been an ongoing process in the Serbian institutions of higher education for a few years. However, not many empirical researches have studied students' perceptions of the Bologna Process. The authors who have examined this problem so far are Nikolić and Kundačina (2012), as well as Maksimović and Stanisavljević – Petrović (2012).

Modern higher education prescribes less theoretical instruction and more practical and individual work on the part of students, as well as a better teacher-student relationship. Students' individual work is reflected in writing term papers, realising projects, conducting researches, performing analyses, accomplishing various assignments, etc. Moreover, students' interaction in classes is of utmost importance. Students are expected to acquire fundamental knowledge in their academic courses, to qualify for individual lifelong learning, to learn the problem-solving techniques, to develop critical thinking, to gain necessary professional competences, etc. Students' active involvement in teaching is reflected in new aspects of engagement. They are allowed to suggest research topics, manage researches independently, plan their activities, etc. This type of student-centered education differs considerably from the old, traditional mode of teaching, which was teacher-centered and consisted of mere transfer of knowledge (Lungulov, 2011, p. 615). Interactive teaching means that students organise their own process of learning, thus improving their own independence, responsibility, problem-solving abilities, creativity and other mature characteristics. This is the only manner in which students can prepare themselves for employment after graduation, ensure that their degree be recognised in the European labour market and gain competencies for lifelong learning. One of the problems that impedes the teacher-student interaction is a large number of students attending lectures.

Students acquire new knowledge by means of researches, collection of data and relevant information, thus upgrading the previous knowledge and creating a flexible and evolving system of knowledge. The goal is teaching based on exploration, which students approach actively and are able to evaluate it. An engaged approach to studying develops students' curiosity, thirst for knowledge, autonomy and inner motivation.

The Bologna Process has been accepted with great expectations by students. The expectations are mainly related to the improvement of teaching, studying conditions, modernising instruction at universities. The Bologna Process has

fulfilled part of the expected outcomes. Its effects cannot be visible without the appreciation of students' opinions. Students should be regarded as the main initiators of reforms and the main participants in each segment of education.

Teachers, students and educators who implied the Bologna declaration have cherished high expectations from this reform. Scholars disagree on the question whether these expectations are fulfilled or not. It is evident that students are those who have expected most, particularly the improvement of the studying conditions and the reduction of theoretical and outdated knowledge.

They have also hoped that a larger number of elective courses will be introduced and that teaching tools will be modernized. The latter has been accomplished almost in full. Yet, students have hoped that exams will be broken into smaller segments, which would be easier to learn and ultimately pass in the form of midterm tests and pre-exam tasks. This requirement, actually prescribed by the Bologna declaration, is respected by the majority of the Serbian faculties. Students themselves favour this way of taking exams since it has a lot of advantages compared to the old practice. The reform has replaced the "ex cathedra" teaching, when students were merely passive listeners. Despite the obvious advantages of this reform of higher education, it cannot be expected that it will solve all the problems of university education overnight. Both teachers and students need a certain amount of time in order to accept the new conditions imposed by this reform. However, it is worth mentioning that students' engagement and interaction are considerably greater.

### **Research Methodology**

The empirical research presented focuses on the following question: What are the perceptions of the bachelor students of social sciences and humanities about the Bologna Process 15 years after its implementation into the Serbian universities? This question determined the subject matter of the research – the students' attitudes to this problem provided "first hand". The goal of the empirical research was to study of the actual state of affairs in the Bologna Process during 2019/2020 academic year and possibilities to improve its realization, which could be compared to similar relevant researches. The empirical tasks involved the examination of students' attitudes to the requirements, benefits and restrictions of the Bologna Process.

The survey and scaling techniques were used, and the instrument was the questionnaire with the assessment scale (BOL-JM-JOZ). The questionnaire was comprised of five closed-ended questions. The Likert scale had 25 items (1 – strongly disagree, 5 – strongly agree).

At the Faculty of Philosophy, University of Niš, 150 bachelor students of various departments participated in the research (Departments of Pedagogy, Psychology and Sociology). The research sample was comprised of the bachelor first- to third-year students of social sciences and humanities at the Faculty of Philosophy in Niš (N= 150) (Table 1).

Table 1. Structure of the Respondents Regarding the Year of Study

		%	Valid %
Valid	First year	43.3	43.3
	Second year	36.0	36.0
	Third year	20.7	20.7
	Total	150	100.0

### Analysis and Interpretation of the Research Results

The empirical research was conducted with the students of the Faculty of Philosophy, University of Niš regarding their perceptions of the Bologna Process. Their perceptions were examined by means of the questionnaire and the Likert scale.

Table 2. What does studying by the Bologna process imply?

Crosstabs		Studying by the Bologna process implies ...			Total	$\chi^2$	df	p
		One cycle (bachelor studies)	Two cycles (graduate and postgraduate studies)	Three cycles (bachelor, master and doctoral studies)		4.76	4	0.31
Year of study	First year	5	5	55	65			
	Second year	3	2	49	54			
	Third year	0	4	27	31			
Total		8	11	131	150			

Although the Bologna Process represents a complex concept, it has a significant impact on higher-education efficiency with teachers and students as equal partners. However, students have to be appropriately informed about this concept of studying, and their own rights and obligations. The research results show that the students who participated in the empirical research were well acquainted with the three cycles of higher-education qualifications: bachelor, master and doctoral studies (N=131). The chi-square test and the crosstabulation of the variables displayed no statistically significant difference in the responses of the students of various years of study, which was to be expected since they had probably gathered detailed and relevant information prior to the enrollment in the faculty departments,  $p > 0.05$  (Table 2).

Table 3. ECTS Credits

Crosstabulation		What are the ECTS credits?			Total	$\chi^2$	df	p
		European system of credit transfer	European system of credit expansion	European system of credit incorporation				
Year of study	First year	39	2	24	65	22.17	4	0.0001
	Second year	46	0	8	54			
	Third year	25	4	2	31			
Total		110	6	34	150			

The European Credit Transfer and Accumulation System (ECTS) is designed to value students' workload, learning, skills and outcomes based on the defined study programmes and academic courses curricula. The credits represent a shared "currency" in the European system of higher education, earned by students' academic achievement and their exam results (Hadžibrahimović, 2010; Mijušković, Teofanov, Teofanov, & Jelačić, 2010; Van der Wende, 2000). The research results (Table 3) proved that the students of social sciences and humanities were well acquainted with this terminology since the majority of the respondents (N=110) knew what ECTS meant. However, the respondents' answers differed and the chi-square test determined a different modality of the responses, particularly those given by the students of the first year of study, who predominantly selected that the ECTS meant "the European system of credit incorporation" (N=24). The difference was statistically significant at  $p < 0.05$  ( $p = 0.0001$ ).

*Table 4. Evaluation in the Bologna Process*

		The Bologna declaration implies:			Total	$\chi^2$	df	p
		Evaluation of teachers by teachers	Evaluation of teachers by Ministry of Education	Evaluation of teachers by students				
Year of study	First year	3	34	28	65	7.33	4	0.12
	Second year	1	22	31	54			
	Third year	2	8	21	31			
Total		6	64	80	150			

The Bologna Process has introduced certain changes into the evaluation of teachers' work – it is evaluated by students. The first reactions to this requirement were rather negative. The results of this research showed no statistically significant difference in the respondents' answers regarding the year of study,  $p > 0.05$ . However, the respondents valued highly the evaluation of teachers by the Ministry of Education and by students, and these responses were treated as correct answers (Table 4).

*Table 5. Knowledge of the System of Credits*

		The number of credits per academic year			Total	$\chi^2$	df	p
		60 ECTS	30 ECTS	48 ECTS				
Year of study	First year	60	1	4	65	8.64	4	0.07
	Second year	49	5	0	54			
	Third year	29	2	0	31			
Total		138	8	4	150			

Potential problems could be detected at the very beginning of the implementation of the Bologna Process into the Serbian higher education. The crucial one involved the educational system with as many as twelve exam terms per academic year, an average eight years of studying, frequent retaking of failed courses, poor performance in exams (success rate under 50%) and only a small number of students successfully passing all the exams in the current academic

year. The question arose how to pass all the exams in only three exam terms and gain 60 ECTS credits, and, which was most interesting of all, how to achieve the success rate of 100% (Nikolić & Ružić-Dimitrijević, 2010). The path to the Bologna Process goals had to be directed towards the accomplishment of these tasks. The studying rules had to be changed considerably in order to be completely accorded with the new system of higher education. The research results (Table 5) showed that all of the respondents knew that the number of ECTS credits per academic year was 60. Therefore, the responses did not differ significantly and were  $p > 0.05$ . The students' attitudes to the ECTS credit system were examined by means of the Likert scale and presented later in the paper.

**Table 6.** What Does the Bologna Process Promote?

		The Bologna Process promotes:			Total	$\chi^2$	df	p
		Students' passivity	Students' mobility	Less workload				
Year of study	First year	2	19	44	65	55.22	4	0.0001
	Second year	4	41	9	54			
	Third year	2	29	0	31			
Total		8	89	53	150			

Mobility is defined as the possibility for students, teachers and researchers to attend a foreign university during either one semester or academic year or to continue their further studies abroad. Are students well informed about one of the main benefits of the Bologna declaration? The respondents mostly stated that the Bologna process promoted less workload, but the majority of them selected the option that it predominantly promotes students' mobility, which was treated as the correct answer in this research (N=89). A statistically significant difference in the respondents' answers was observed ( $p < 0.05$ ,  $p = 0.0001$ ), which means that they knew how to answer the questions from the questionnaire (Table 6).

The factor analysis was supplied in further statistical analysis of the collected data.

**Table 7.** KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.559
Bartlett's Test of Sphericity	Approx. Chi-Square	1542.790
	df	435
	Sig.	0.0001

The value of the Kaiser-Meyer-Olkin test was 0.56, while the Bartlett's test showed a statistically significant difference  $p = 0.0001$ , which proved that the use of the factor analysis was justified (Table 7).

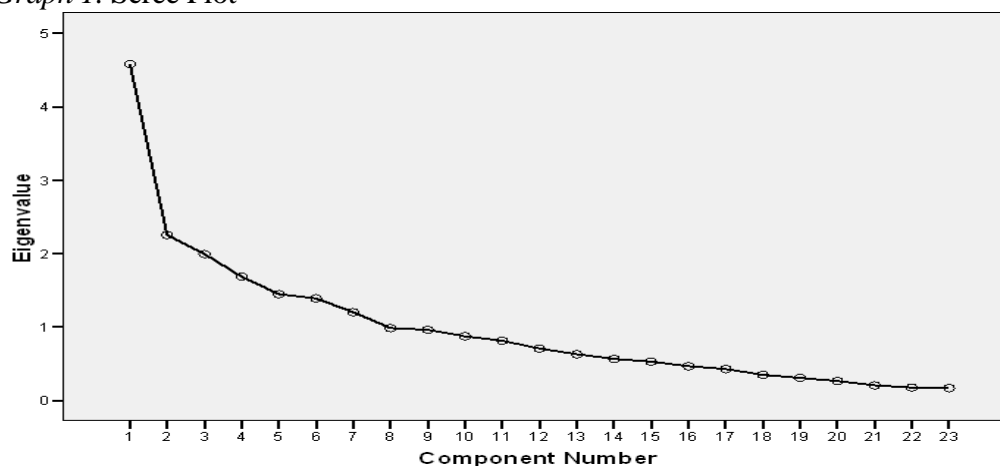
Table 8. Factor Analysis with Extracted Factors

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.581	19.919	19.919	4.581	19.919	19.919
2	2.252	9.790	29.709	2.252	9.790	29.709
3	1.995	8.673	38.382	1.995	8.673	38.382
4	1.686	7.332	45.714	1.686	7.332	45.714
5	1.449	6.298	52.011	1.449	6.298	52.011
6	1.391	6.050	58.061	1.391	6.050	58.061
7	1.201	5.222	63.283	1.201	5.222	63.283
8	0.987	4.290	67.573			
9	0.963	4.188	71.761			
10	0.874	3.801	75.562			
11	0.814	3.539	79.101			
12	0.707	3.076	82.177			
13	0.629	2.737	84.914			
14	0.567	2.466	87.380			
15	0.530	2.304	89.683			
16	0.467	2.031	91.714			
17	0.429	1.866	93.580			
18	0.349	1.518	95.097			
19	0.308	1.338	96.435			
20	0.266	1.155	97.591			
21	0.207	0.900	98.491			
22	0.178	0.772	99.262			
23	0.170	0.738	100.000			

Extraction Method: Principal Component Analysis.

Table 8 exhibits the factors and the explained variance – the initial factors (Initial Eigenvalues), the values of the extracted factors (Extraction Sums of Squared Loadings). The initial factors included all the items from the research instrument. Since the factor analysis was bound to the Kaiser's characteristic squares whose value was over 1, Table 8 displays 7 factors with the characteristic values of 1 and over. Those 7 components account for the total of 63.28% of the variance.

Graph 1. Scree Plot



The presented scree plot shows that 7 factors were extracted in the research. The factors positioned above the point of curvature were retained for further statistical analysis, since the factors below that point followed the decreasing path. However, in order to obtain general perceptions of the students about the studies by the Bologna Process, we kept 5 factors that explained the total of 52.01% of the cumulative variance. These 5 factors were used for further statistical analysis.

Table 9. Attitudes towards the Bologna Declaration

Year of study		I do not object to the Bologna Process, but I object to the manner of its realisation in our universities.	University teachers are not ready to accept the changes created by the Bologna Process.	Students are not ready to accept the changes created by the Bologna Process.	I think that only higher education benefits from the introduction of the Bologna Process.	I think that the Bologna reforms should be applied in the prescribed manner.	I think that the Bologna Process facilitates studying considerably
First year	M	3.4923	3.1846	2.8000	3.6615	4.0308	3.6000
	sd	1.07708	1.22337	1.04881	1.01976	1.03031	1.22219
Second year	M	3.9444	3.6852	3.0741	3.8704	4.3148	4.2407
	sd	.89899	1.04293	1.25671	0.89118	.94817	1.08045
Third year	M	3.6129	3.8710	4.0323	3.9032	3.3548	3.5806
	sd	1.22956	1.23131	.87498	.97826	1.27928	1.20483

F= 9.53; df=2; p=0.0001

The responses provided by the students of social sciences and humanities ranged from indecisiveness to disagreement regarding the application of the Bologna Process reforms in the Serbian educational system (Table 9). The arithmetic mean of the responses shows that the senior students assessed the implementation of the reforms more positively than their younger colleagues. This might indicate that the students of the first year had less experience in studying according to the programmes prescribed by the Bologna declaration in comparison to their more experienced colleagues. A statistically significant difference was observed in their responses,  $p < 0.05$ ,  $p = 0.0001$ .

Table 10. The Bologna Declaration Advantages

Year of study		Reduced obligatory reading and exam length.	Continuous evaluation of students' achievement	Exams are broken into segments	Students are actively engaged in studying	Students' mobility and recognition of their degrees abroad	Elective academic courses designed according to students' interests	Stimulation of continuous learning
First year	M	3.9231	3.8769	4.0615	3.8308	3.9692	3.7231	3.8154
	sd	.98912	1.05338	0.93336	.87624	0.95147	0.99228	1.11653
Second year	M	4.0926	3.9074	4.1296	3.7222	4.2778	4.0370	3.9074
	sd	0.95697	1.15364	1.13348	.91973	.89899	1.09825	1.24792
Third year	M	3.7097	3.3871	3.9032	3.7419	3.9677	3.5806	3.7742
	sd	0.97275	1.14535	1.04419	1.29016	0.94812	1.33602	1.35916

F=1.83; df=2; p=0.16

Table 10 shows the results related to the students' perceptions of the Bologna declaration. The arithmetic means prove that their responses ranged from indecisiveness to agreement. The highest arithmetic mean is observed in the statements referring to the reduced exam length and obligatory reading, students' mobility and recognition of degrees in foreign countries. The rest of the statements were arranged on the Likert assessment scale,  $M < 4.00$ . The comparison of the

students' responses shows that the students of different years of study expressed identical opinions. Their responses were homogenous with no statistically significant difference observed,  $p > 0.05$ . The results prove that the advantages of the Bologna declaration are present and evident, but that this aspect should be evaluated and checked continuously.

*Table 11. The Bologna Declaration Shortcomings*

Year of study		Insufficient number of classrooms necessary for regular attendance	University teachers face unsustainable workload owing to numerous academic courses	Low learning quality	The number of graduates is increasing	Prolonged education – master studies mandatory at the majority of faculties
First year	M	3.6154	3.4462	3.1692	3.5077	3.6308
	sd	1.07081	0.90192	0.96127	0.90352	1.21924
Second year	M	3.7778	3.3519	3.3333	3.8333	4.0370
	sd	1.09315	1.29086	0.82416	1.07721	0.88941
Third year	M	3.9677	3.6452	4.3871	4.0968	3.7097
	sd	1.16859	0.91464	1.02233	0.97826	1.03902
F= 10.80; df=2; p=0.0001						

The research results pertaining to the statements about the Bologna Process shortcomings show the inconsistency in the participants' responses. The respondents mainly agreed with some of the statements. They did not demonstrate a clear understanding of the downsides of studying according to the Bologna Process. Yet, it means that their personal opinions have to be examined by using some other technique and instrument. Regardless of the obtained results, the sum of the arithmetic means in the ANOVA testing proved that senior students recognised the shortcomings of the Bologna Process better than their younger colleagues. Their responses displayed a statistically significant difference,  $p < 0.05$ ,  $p = 0.0001$  (Table 11).

*Table 12. The Bologna Process from the Students' Perspective*

Year of study		I think that university teachers have to coordinate their criteria and respect the Bologna reforms	I think that there should be fewer pre-exam tasks and more time for studying for final exams	I think that the Bologna Process should be respected in full and that there should be fewer exam terms	I think that the prerequisite for the enrollment in the following academic year is 60 ECTS credits	I think that the old way of studying should be reintroduced.
First year	M	4.0000	3.8462	2.8308	2.4923	2.6769
	sd	0.81009	1.28975	1.25710	1.42657	1.44814
Second year	M	4.3889	4.4444	2.4074	2.0926	2.1667
	sd	0.87775	0.83929	1.43433	1.43104	1.20924
Third year	M	3.6129	3.7097	3.5484	3.3226	3.2258
	sd	1.30837	0.90161	1.20661	1.27507	1.38347
F=3.97; df=2; p=0.02						

Generally speaking, the reforms initiated by the Bologna Process assume the shift of the focus from university teachers, as once domineering figures in teaching, to students, currently in the centre of attention. Therefore, this model of higher education has been termed the student-centered model of studying.

Students' experiences of the higher-education reforms are versatile. Dondur,

Pokrajac, and Grbić (2011) state that “a relatively small number of European universities have started the reformation in line with the Bologna algorithm”, so that, despite numerous positive or nearly positive experiences, no one has been particularly delighted with this reform, especially not students. Quite the contrary, they consider the Bologna Process predominantly as a degradation of university studying, because it “obstructs knowledge and suppresses studying, as an in-depth acquisition of knowledge” (Dondur, Pokrajac, & Grbić, 2011, p. 370). The presented research results support these assumptions. From the perspective of the surveyed students, there is no clearly defined benefit of the realisation of the Bologna Process in higher education. The statements listed in Table 12 were valued more highly by the senior students than by their younger colleagues, particularly the first-year students. Their responses demonstrate a statistically significant difference,  $p < 0.05$ ,  $p = 0.02$ .

## Discussion

The implementation of the Bologna Process into the Serbian higher education still reflects various problems that are either unsolved or solved only partially. Universities are still faced with the problems of inefficient studying, acquisition of amounts of theoretical and unfunctional knowledge, outdated textbooks, insufficient practice and opportunity for students' researches. Since the very beginning, the higher-education reform has been inadequately prepared, with teachers and students inappropriately informed. Unlike other signatories of the Bologna declaration that regularly organise various activities, such as conferences, seminars and workshops, with the purpose of exchanging experiences and information related to the implementation of the Bologna Process in their respective countries, the institutions in our country do that very rarely, sporadically and selectively (Tomić, 2006). University lectures still lack innovative methods that promote interactive learning – exploration, discovery, problem-solving, differentiating, creativity, receptivity, group or pair work, and other various types of activities (Osmanović Zajić, Maksimović, & Lazić, 2022).

Students are motivated to participate actively in university lectures by the application of novel methods and innovative manner of instruction. Old and outdated methods are associated with the passive part that students used to play in the previous system of higher education. Modern teaching methods inspire students to develop an active attitude towards teaching and to participate in every segment of university teaching through multidimensional interaction. The following are the three fundamental components to be developed in the future as regards higher education:

1. To teach young people how to improve and advance permanently.
2. To teach young people how to use their spare time productively.
3. To teach young people how to socialise and support others, i.e., how to develop their social skills properly (Suzić, 2009).

The analysis of the aforementioned proves that the essence of the Bologna Process has not been implemented yet and that its full realisation is still far from completion. The basic requirement, the competency-based qualifications, has not been fulfilled so far. We live in the time in which the future is already happening. This time is the time of the “future shock” (Toffler, 1970; 1981).

The previous higher-education system was based on general education, whereas the contemporary education system respects the principles postulated by the Bologna Process that is radically destroying the advantages of the old system. The question arises: Why? The answer lies in the fact that there are those who make decision but are unable to see the consequences, on side, and those who refuse to see the reality, on the other.

The Bologna Process can be interpreted as a process of internationalization of higher education, and at the same time, digitalization in all spheres of life, which is becoming especially relevant in today’s realities (Bitieva, Bulavina, & Bitieva, 2021; European Commission, 2021). The altered roles of teachers and students are the direct results of the Bologna Process in higher education. Portela, Sá, Alexandre, and Cardoso (2009, pp. 465-474) state that the accomplishment of this requirement is possible only if both of them are highly motivated. There has been more than a decade since the Bologna Process was implemented into the Serbian higher-education system. Therefore, the experiences of the students studying according to the new reforms and of those who studied in the old system of education can be compared. This could be a topic for some future research.

Digitization has contributed to adaptation in new situations and in all spheres of life, which was highlighted by the European Commission (2021) and the goals of higher education that required the reorganization of teaching and the transition to an e-educational environment. Digital transformation has become one of the key strategic goals of the development strategy of most universities. At that moment, no one expected what followed at the beginning of 2020. All this resulted in the transformation of society through education for the digital age in all aspects of life and learning.

## Conclusion

The Bologna declaration is the European document that creates the European higher education area and harmonises the structure of the education system in the signatory countries. The fundamental goal is the creation of the common European higher-education landscape. Yet, as its name suggests it, it is an ongoing process. Thus, it is not surprising that a number of signatory countries has started implementing these reforms only recently.

The Bologna Process requires a period of time necessary for its full implementation and it assumes a number of changes and reforms that one country has to perform in all segments of society. The Bologna declaration preceded the Bologna Process and presumed a series of changes in higher education and in the teacher-student interaction.

The change of the roles of teachers and students in the process of teaching is

reflected in their individual and more active engagement in education. Consequently, their individual involvement has to be continuous and founded on critical thinking. Some further research might be conducted on the positive and negative effects that the Bologna Process has exerted upon the Serbian education system. This paper presents certain parameters necessary for such an analysis and thus contributes to a better perception of the Bologna Process effects on the Serbian higher education. Moreover, this paper aims at encouraging the scholars and academics to examine the Bologna Process in university teaching during the COVID-19 pandemic.

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## **The Implication of ‘Rurality’ in Terms of Higher Education in a Rural South African Context**

*By John Victor Rautenbach<sup>\*</sup>, Ntobeko Shozi<sup>±</sup> & Angelo Nicolaides<sup>°</sup>*

Students based in higher education institutions in rural settings are faced with various challenges. This literature study offers insights into the implication of ‘rurality’ in terms of Higher Education in a rural context, considering student well-being and social work training challenges. It stresses that the University of Zululand has put in place a number of initiatives to support teaching and learning considering the above. The authors present the defining characteristics of rurality and higher education, make a historical rural-urban comparison, and discuss social work fieldwork training challenges and wellbeing. Recognizing the challenges posed, some solutions are posited to mitigate them. The article also stresses the need to be cognisant of the fact that there is not only a problem of marginalization and privilege in rural settings, but also in urban settings where in less affluent areas, the facilities are inferior and numerous other disadvantages manifest. Thus, any desired upward mobility for students from impoverished areas is challenging to say the least. The work is not based on any intellectual framework or theoretical stance but is placed in the socio-economic structure of our South African society and what ‘rurality’ implies.

*Keywords:* rurality, higher education, South Africa, social work, disability

### **Introduction**

When one contemplates the notion of rurality, an image of the countryside comes to mind. One immediately thinks of indigenous cultures with all their accoutrements, including the philosophical notion of Ubuntu, and a wide array of African languages. For the most part, urban and rural areas are viewed as possessing particular distinct cultures and apprehensions that affect their priorities and needs, but this is entirely untrue and in any event, the “...realities faced by people in rural areas cannot always be addressed by policy made elsewhere and for everyone” (Hlalele, 2014). For the sake of clarity, rural areas in South Africa are, by definition, areas that are deprived of access to ordinary public services including inter alia water and sanitation and they are generally without a formal local authority. Communities tend to be sparsely populated with less density of population. The population is for the main part also homogenous when it comes to aspects such as culture, customs, language etc. The primary occupation is based on agriculture although some people may commute to towns or cities in relatively

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<sup>\*</sup>Professor, Department of Social Work, Faculty of Humanities and Social Sciences, University of Zululand, South Africa.

<sup>±</sup>Researcher, Department of Philosophy and Applied Ethics, Faculty of Humanities and Social Sciences, University of Zululand, South Africa.

<sup>°</sup>Professor, Department of Philosophy and Applied Ethics, Faculty of Humanities and Social Sciences, University of Zululand, South Africa.

close proximity. In 2021, more than 67.85 percent of South Africa's total population lived in urban areas and cities, thus a sizeable percentage reside in rural communities.<sup>1</sup>

From the point of view of rural students there are however a myriad of challenges and hurdles to overcome. In South Africa, rural students have been disadvantaged for some time. At the outset there is a deficiency of information, vexing socio-economic barriers, remote geographic locations and endemic poverty. These all serve to make it very difficult for poor rural learners to access higher education. "Majority of these learners come from poor families who cannot afford to pay for costs associated with applying for higher learning such as application fees, National Benchmark Tests (NBT) fees, not to mention the cost of data. Paying for data necessary to send an online application cannot be prioritised over having food for many poor families, and that does not mean that education is not valued. The main challenge rural learners face is lack of information including information about different institutions of higher learning, different courses offered and available financial assistance. For many, access to information is important but understanding information is another thing. Language barriers and the standard of education offered in rural schools challenges many learners' understanding on basic information such as instructions on application forms" (Ramontja, 2023).

Scholars tend to disagree about the meaning of 'rurality'. As a result of this disagreement, there are at least three approaches to defining rurality. The most dominant approach is the functional approach which seeks to define rurality by breaking it down into functions. According to this approach, rurality simply means non-urban. Meaning that rurality can be defined in terms of lacking the characteristics that the urban area has, or rather, rurality can be defined in terms of having the characteristics that can never be associated with the urban area. In other words, what the functional approach suggests is that there is great distinction between how rural areas and urban areas function, hence the necessity of defining rurality as just non-urban. Therefore, as Weeks (2010, p. 34) defines urban as, "a place-based characteristic that incorporates elements of population density, social and economic organization, and the transformation of the natural environment into a built environment", it means that rural areas do not incorporate elements of population density, social and economic organization, and the transformation of the natural environment into a built environment. Hence the reason why Cloke, Marsden, and Mooney (2006, p. 20) seeks to define rurality in terms of areas which:

1. Are dominated (either currently or recently) by extensive land uses, notably agriculture and forestry.
2. Contain small, lower order settlements which demonstrate a strong relationship between buildings and extensive landscape, and which are thought of as rural by most of their residents.
3. Engender a way of life which is characterized by a cohesive identity based on respect for the environmental and behavioural qualities of living as part of an extensive landscape.

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<sup>1</sup>See Statista online at: <https://www.statista.com/statistics/455931/urbanization-in-south-africa/>.

This, supposedly, evidences that the way that rural areas function is distinguishable to that which the urban areas function. Therefore, according to the functional approach to defining rurality, characteristics or functions such as the extensive land use for agriculture and forestry, lower order settlements, and cohesive identity are enough to define rurality as they guarantee its distinction to urban areas with these functions only being relevant to rural areas and not in urban areas.

The question that might be asked against the functional approach is whether the characteristics that it depends on to define rurality can always guarantee its distinction to urban areas. This question is important because if the characteristics such as the extensive use of land for agriculture and forestry, cohesive identity and lower order settlements cannot guarantee rurality's distinction to the urban then, first, the idea that rurality can be defined in terms of its functions is put into doubt and, secondly, the idea that rurality refers to non-urban automatically becomes invalid. Put differently, for the functional approach of defining rurality to succeed, the functions that it relies on need to guarantee the distinction between rural and urban thereby validating the idea that the best way to define rurality is by breaking this concept down to its functions.

### **A South African Context**

The question to be asked now is whether, in the context of South Africa, the above mentioned characteristics are enough to explain what rurality is, especially with respect to its distinction to urban. According to Metz (2011, p. 551 emphasis added) "...at the end of apartheid in 1994, nearly 90 per cent of land, especially the land for agriculture, in South Africa had been forcibly expropriated into the hands of white people who constituted about 10 per cent of the population", or as Atuahene (2011, p. 121) puts it, "Under colonialism and apartheid, the ruling white minority stole vast amounts of land from black Africans in Zimbabwe and South Africa". The reason for this expropriation of land was agriculture as, "...the country then was divided between provinces of the British Empire, states formed by Afrikaner settlers, and various native African states. All of these territories were dominated by farming cattle or cash crops such as sugar, coffee and wine. During the 19th century, urban areas were few in number and small in size" (Turok, 2014, pp. 4-5 emphasis added). During this period, it can be said that the maintenance of the urban areas was funded by agriculture. The 1980's saw a massive increase in urbanisation due to the mining boom in South Africa as the contribution of the mining sector to gross domestic product (GDP) was 22.2% (Macmillan, 2017, p. 273). The areas surrounding the land used for agriculture was used for mining and urbanisation. This effectively created a situation where agriculture and urban spaces can co-exist. It also created a situation where there was synonymy between agriculture, urban and white people as it is stated by Goodlad (1996, p. 1630; see also Lemon, 1991, p. 3) that, "By the end of the second decade of the 20th century, a spatial segregation of racial groups to mirror the class segregation of occupational groups was well advanced, especially in urban areas. White people

were already 55 per cent urbanised". This effectively shows that agriculture in South Africa is something synonymous with white people, of which the history of it is colonialism and apartheid policies. Even more significantly, it shows that in South Africa the extensive use of land for agriculture is the characteristic not only associable rural areas but also urban areas.

The point being made here is that there is a limitation to the functional approach to rurality. The limitation is that one of the characteristics it relies on, the extensive use of land for agriculture, can never be the sufficient condition for defining rurality because it can also be found in urban areas, thereby failing to guarantee the distinction between rurality and urban.

In the early 1990s just under 60 000 white-owned farms accounted for about 70% of the total area of the country. Today there are under 40,000 farming units covering about 67% of the country (StatsSA, 2009). The agricultural quality of this land varies, with only 13% classified as arable and over a third located in the arid Northern Cape where just 2% of the population resides. Most farmers are white but small numbers of blacks with access to capital are acquiring land through the market independently of land reform (Walker & Dubb, 2013).

In other words, in order to know if the extensive use of land for agriculture is one of the sufficient conditions to maintain the idea that rurality simply means non-urban, we first need to look at who owns most farms in South Africa. As already stated, about 67% of the farms in South Africa are owned by white people, necessitated by colonial and apartheid policies. We certainly know that these farms are not located in rural areas because they are owned by white people and the majority of white people in South Africa do not reside or do their business in rural areas, but rather in urban or rather semi-urban areas. Hence the synonymy between agriculture, urban areas and white people. In the 1980's, "urban agriculture was placed on the policy agenda by the emphasis accorded to strategies for 'sustainable development' in general and 'sustainable cities' in particular" (Rogerson, 1992, p. 21). This policy was exclusively to the benefit of white people. Therefore, perhaps the question that ought to be asked is, if it is true that the extensive use of land is a characteristic not limited to rural areas but also found urban areas, are other said characteristics of rurality, extensive use of land for forestry, cohesive identity and lower order settlements, enough to maintain the idea that rurality simply refers to non-urban. Can the functional approach survive independent of the extensive use of land for agriculture as a function for defining rurality?

Another familiar idea for defining rurality is the political-economic approach. According to this approach, functions that are said to be characteristic to rurality such as the extensive use of land for agriculture and forestry, cohesive identity, and lower order settlements exist to maintain an economic and political system where there is private ownership of the means of production and their operation for profit. Thereby, this approach suggests that there cannot be a distinction between urban and rural because central to both these areas is maintaining the price system, private ownership, property rights, capital accumulation and keeping the markets competitive. Similar to urban "...rural is best regarded as the outcome of a variety of economic, social and political processes and that these might usefully be observed from the vantage point of land development" (Murdoch,

1993, p. ix). Therefore, "...capitalism has dissolved the identity of the rural areas, so that the concept of rurality no longer has a distinctive, coherent real object, only imaginary ones" (Sayer, 1984, p. 279 emphasis added). Thereby, the political-economic approach makes clear the relationships that help structure forms of capitalism in the so called rural areas and helps map out the limits on local capacity. At the same time, "the forms taken by bonding, bridging, and linking capitalism in the different villages help explain differential levels of villager capacity to resolve local livelihood and governance problems" (Bebbington, 2006, p. 1972). As Cloke, Marsden, and Mooney (2006, p. 231) further asserts, "For more than two decades social scientists have considered how nature is drawn into systems of capitalism and, in particular, the historical political-economic processes through which capital has come to appropriate and, in many cases, exploit different natural resources (soils, minerals, water, and so on)". In other words, the functions associated with rurality would be sufficient in defining rurality if they were ends in themselves but, as the political-economic approach argues, these functions are merely means towards a particular economic and political agenda which is capitalism.

The concern with the political-economic approach might be that if we think about rurality only in terms of political economy we would then be missing out on so much in terms of what the rural actually is. The basis of this concern is that central to rurality are people rather than the system, thereby suggesting that the political-economic approach reduces rurality to 'peoplelessness'. Therefore, the political-economic approach is. Written in such a way that rural landscapes are either deserted of people...or occupied by little armies of faceless, classless, sexless beings dutifully laying out Christaller's central place networks, doing exactly the right number of hours of farm work in each of Von Thunen's concentric rings, and basically obeying the great economic laws of minimising effort and cost in negotiating physical space (Philo, 1992).

This criticism can be summed as, the limitation to the political-economic approach is that it seeks to define rurality independent of what is key to it, the people. Rurality is something which, "represents a sense of security, identity and history, rather than being just an asset to be used for capitalism alone" (James, 2001, p. 93 emphasis added). In other words, independent of the people, rurality cannot be imagined hence the limitation to the political-economic approach which seeks to do the opposite (Mbiti, 1969).

Other scholars have contended that rurality is not something that exists in objective reality but instead only exists as an idea that has been created and accepted by the people in a society class distinction. As Woods (2011, p. 9) asserts, "rurality is understood as a social construct...an imagined entity that is brought into being by particular discourses of rurality that are produced, reproduced and contested by academics, the media, policy-makers, rural lobby groups and ordinary individuals. The rural is therefore a 'category of thought'". Cloke, Marsden, and Mooney (2006, p. 19) adds that, "rurality is characterized by a multiplicity of social spaces overlapping the same geographical area, so while the geographic spaces of the city and the countryside have become blurred it is in the social distinction of rurality that significant differences between the rural and urban remain".

The idea being put forward here is that the reason that we have something that we can point towards as rural is that people tend to be preoccupied with social classifications. However, independent of this preoccupation with society class distinction something as rural, even urban, does not exist. The criticism with the social constructionist idea of rurality might be, if rurality does not exist then what is it that actually exist? If the ideas of rural and urban are merely illusions of human consciousness, what are we then left with? The social constructionist approach does not answer this question. In other words, this approach seems to be limited as it does not attempt to go beyond and substantiate the claim that rurality is merely a social construct rather than something that exists in objective reality as characterised by characteristics such as the lower order settlements, cohesive identity and extensive use of land for agriculture and forestry, as asserted by the functional approach, or only existing as means to maintain capitalist political-economic system, as the political-economic approach asserts.

The appropriate way to finding out what is meant by rurality, or if rurality is a social construct or something that exists in objective reality, might be to think of why is there migration from places characterised by mostly the extensive use of land for agriculture and forestry, cohesive identity and lower order settlements to places characterised by mostly higher order settlements and diversity in economy and population. This should be able to assist in trying to define what rurality is, even urban, as it might reveal the factor that unifies the traits or characteristics that we normally associate with rurality such as the extensive use of land for agriculture and forestry, cohesive identity and lower order settlements, or at least why it has never been attempted to define rurality in terms of traits such as higher order settlements and diversity in economy and population. Or, in the case of South Africa, why it was important for the Apartheid government to reserve urban areas for white people at the exclusion of black people, as asserted by Wilson (1972) that, "The native should only be allowed to enter the urban areas, which are essentially the white man's creation, when he is willing to enter and to minister to the needs of the white man and should depart therefrom when he ceases so to minister". What is that factor that led to this exclusive reservation of urban areas for white people?

The answer to this question seems to concern accessibility. In other words, what seems to separate between rural and urban is that the areas that are characterised by agriculture, forestry, cohesive identity and lower order settlements have no, or rather limited, access to opportunity in terms of employment, services, health, infrastructure, security, and etc. as opposed to areas characterised by towns, suburbs, diverse population and economy. So, the factor that unifies the traits that are commonly associated with rurality is none, or limited, accessibility. As Brovarone, and Cotella (2020, p. 1) assert, "Rural territories are worse equipped than urban ones in terms of accessibility to services and opportunities, due to their scattered development and peripheral character". Thereby, the reason that people tend to migrate from rural to urban is to seek access to opportunity. As stated by Qiu, Yang, Zhang, and Ma (2011, p. 6), "People migrate to cities for better job opportunities and higher incomes, and to assist their families economically", which all can be reduced to access to

opportunity. Therefore, rurality is something that cannot be imagined independent of access to opportunity and this is what tends to separate it from urban.

### **The Urban-Rural Divide and Inequality**

Graetz et al. (2018) contend that there are indeed extensive disparities between urban and rural populations. It is evident from the literature that students living in rural settings are increasingly disaffected and sense that they have been relegated to such a degree that they fail to fully appreciate the immense importance of the knowledge and skills that they acquire as having a meaningful impact in the rural communities in which they reside as well as beyond. In the majority of rural areas there is limited infrastructure and basic amenities are generally lacking such as inter alia running water, electricity, transport, and of course basically essential for students in the era of 4IR, access to low cost internet. They are equally challenged in terms of financial constraints which are exacerbated by the often lack of access to apposite technology as they take on a curriculum (Graetz et al., 2018; Carr & Kefalas, 2009; Cuervo, 2016; Alston & Kent, 2003).

Inequality is increasingly demonstrated inside 'regional proximity' (Horner, Schindler, Haberly, & Aoyama, 2018) and the sustainability of rural communities is greatly diminished when young adults leave their rural areas (Cuervo, 2016). There is of course evidence from even G7 nations that many students in urban areas are not as privileged, and in fact often more challenged than rural students. Thus, privilege and marginalization are also found to exist in urban areas (Jones, Ewald, & McKown, 2017). This is not generally the case in South Africa and the rural communities are hardest hit. This suggests that for example, school education for African students is better in urban settings than in rural settings, despite there being poverty. There are also more opportunities for upward social mobility in cities in South Africa, although of course, not for all (Kok & Collinson, 2006).

Nonetheless, to many young rural adults, it is deemed essential to obtain a place in higher education as it allows them to acquire at least a measure of independence as they seek a better life and job opportunities. Very often this drive is also geared towards helping sustain their rural family economically. Many thus tend to leave as they believe that they cannot obtain their desired education or later employment opportunities once they do qualify in a desired field of study (Kenway, Kraack, & Hickey-Moody, 2006). The need for personal and professional development generates a desire to seek 'greener pastures' as it were given that in mainly rural areas people have problems in finding employment and there are also very low levels of household income (Kamvasinou & Stringer, 2019).

During the apartheid era in South Africa, education was compromised in traditionally black higher education institutions (HEIs), as they were generally very poorly resourced (StatsSA, 2003). Such institutions included those institutions existing in rural areas in the so-called 'Bantu homelands' and they were for the most part deprived of needed resources (Atkinson, 2014). This uneven distribution of resources severely impacted student access to higher education and the subsequent career choices of students. Today, the Constitution of South Africa and

numerous education policy documents stress that all South African students should have access to a single quality of learning and teaching driven education, comparable facilities and equivalent educational opportunities but this is not yet the case. We cannot ignore that there are glaring inequalities in standards of living, availability and access to resources and even shorter life expectancy, in countries where colonialism manifested and socio-economic growth has been thwarted due to its mainly negative legacy (Dados & Connell, 2012). Holland, Lachicotte, Skinner, and Cain (1998) stress that the manner in which students' previous involvements and their rural cultural backgrounds inform their learning and also the relationships they develop in higher education.

There is no doubt that both one's family background and the community in which students live ultimately influence their identities, agency and their sense of belonging as they move into higher education. In examples from Australian higher education, it was found that increased participation of rural youth into higher education addresses social justice issues (Gale & Tranter, 2011) which also applies in a South African context. Trahar, Timmish, Lucas, and Naidoo (2020) assert that rurality be a useful construct for investigating life and education in rural areas and it can also enable comparative analysis of rural-urban divides, whilst providing greater insight into the broader issues of what 'local' implies when it comes to higher education.

Cairns (2017) argues that young adults' mobility decision-making processes are supported or constrained by existing household resources which exist outside economic, and likely also social and cultural capital. They include fundamentally unconscious prospects and possibilities within which they operate (Cairns, Growiec, & Smyth, 2013). The disparities in especially rurality tend to mediate access to higher education and ultimately to gainful employment (Akala, 2017). There is also indication from other countries, arguing that a dearth of resources and opportunities reinforces the inability of young adults to leave their rural communities (Carr & Kefalas, 2009). When it comes to equitable education, rural people generally continue to be ignored (Stelmach, 2011).

### **The Need for Decoloniality**

For the most part, the curricula, endure infusion with colonialism. These need to be "...reimagined and reconfigured to build on and value all (including rural) HE student experiences" (SARiHE, 2019). There is also indeed great complexity when it comes to future decision-making by rural young people as a whole and this includes some subtle and also systemic barriers faced by rural students (Fleming & Grace, 2014). Naidoo et al. (2020) also argue that there is a juncture between race and ethnicity in South Africa and indeed the wider Southern African region and an interchange of decoloniality and curricular fairness relating to student co-researchers' previous experiences and their encounters with higher education curricula. They also stress that the legacy of colonialism continues to affect the lives of students and specifically those emanating from rural communities. Many changes needed if rural-based universities are to become catalytic agents of

sustainable development (Nkomo, 2007). It is sadly the case that many students in rural milieus in South Africa endure side-lining despite various post-1994 democratisation policies being developed to promote even-handedness, admittance to ultimately retention in higher education institutions.

### **The University of Zululand as a Highly Positive Example**

Given the inequities experienced by most students from rural contexts in accessing higher education the University of Zululand has put in place a number of initiatives to support teaching and learning. It recognises that its typical student has certain characteristics which place them at a disadvantage when compared to most urban students. The issues faced include students emanating from a rural area that is deficient in apposite infrastructure. The students often have no access to basic amenities such as electricity, water and decent sanitation and reside in poor families. They have challenges in that they may be from the first generation in the family to attend a tertiary education institution and may accordingly have naïve expectations of the nature and outcomes of higher education. In addition, they may have attended an under-resourced school and require assistance with study skills and language skills (given that isiZulu is not the language of instruction but rather English. They may also require assistance with digital literacy and lack adequate technological ability and equipment such as a smartphone or laptop- thus digital inequality is widespread. It is also likely that some students may have interrupted secondary and higher education for financial or other causes; and they may have completed some post-secondary education.<sup>2</sup>

To mitigate and alleviate challenges, the University of Zululand now has a deputy Vice-Chancellor with responsibility for teaching and learning. There is a Senate Committee on Teaching and Learning, a Director of Teaching and Learning, and Deputy Deans are in place in all four faculties with responsibility for teaching and learning. The teaching and learning project is derived from four key goals in the strategic plan. Critically important are the scholarship and professionalisation of teaching and learning, student support, and e-learning. The university is also aligning the teaching and learning strategy with what is happening on the ground. “The policy and regulatory landscape in the institution for teaching and learning are now consolidated and have a coherent framework to assist academics, to regulate their practice, and to deal with the emerging landscape outside of the institution. The faculties of the university have been actively focusing on the practice of teaching and learning as well as on the development of students and staff to deliver the desired high quality outcomes.

The Teaching and Learning Centre is embarking on a major strategic review, to ensure that it will align its work with the institutional strategic direction, but also with what is happening nationally. The University also has a compulsory induction programme for new academic staff”.<sup>3</sup> Curriculum transformation within Higher Education has invariably been an enduring process within post-Apartheid South

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<sup>2</sup>University of Zululand, 2021: <http://www.unizulu.ac.za/2021/#>.

<sup>3</sup>University of Zululand, 2021: <http://www.unizulu.ac.za/2021/#>.

Africa Universities. The COVID-19 Pandemic has illustrated very clearly that there are numerous challenges for the higher education sector around the world, especially for disadvantaged universities (Ndebele & Mlambo, 2021) and their students, most of whom are in rural settings. If rural students are not deficient and passive they can certainly add value in their communities and far beyond (Walker & Mathebula, 2019). A final challenge faced by rural universities is the retention of academic staff. New academics often receive mentorship and lecturing skills while completing their own doctoral studies. With this experience and qualification, they are then poached by urban-based campuses that offer more family friendly amenities and schooling.

### **A Historical Rural-Urban Comparison**

In 1994 the Rhodes University social work programme was relocated from the main campus in the rural town of Grahamstown (now called Makhanda) to the university's coastal satellite-campus in the city of East London. The rationale at the time, was that the rural town simply did not have the needed training infrastructure, primarily in the form of fieldwork placement hosts, that would be needed to increase the number of students in the University's social work department. East London, was preferred as it has many Government Departments and NGOs that employ social workers, and thus would have a greater number of options for student fieldwork placements, internships and work integrated learning opportunities. In 2004 the Rhodes University's East London campus was then incorporated into the University of Fort Hare (UFH) (RSA, 2003, pp. 11-12). The result was that Rhodes University lost its social work programme and has elected not to establish it again at its rural campus. Fort Hare already had an existing social work training programme at its main campus in the rural town of Alice. This means that the University of Fort Hare now has a social work programme that is offered on two sites, one in a rural context and one in a city context.

One of the authors of this paper was employed as a social work academic at UFH for 18 years and was also the Head of Department. He recently moved from UFH to the University of Zululand, which is based in the rural town of KwaDlangezwa, to assist in relaunching its four-year professional Bachelor of Social Work degree. The other authors have also previously worked at urban-based universities and are now also based at the rural campus of the University of Zululand. It is against this background that we provide our insights into the implication of 'Rurality' in terms of Higher Education in a rural context, considering student well-being and social work training challenges.

### **Social Work Fieldwork Training Challenges**

Social work training, is fieldwork intensive. From their second year, students register with the South African Council for Social Service Professions (SACSSP) as 'student social workers'. The training requires students to have fieldwork

placements under the mentorship and supervision of a professional social worker in a social service setting. This culminates in a half-year block placement in the fourth and final year of the social work degree.

The relocation and subsequent closure of the Rhodes University social work programme hints at the systemic and institutional challenges that rural-based universities might face in training social workers. The major challenges relate to the limited number of formal fieldwork and work integrated learning opportunities and the greater distances that students need to travel between campus and host organisations.

While most fieldwork placement organisations and community projects are based in urban areas, the majority of poor people live in rural areas (Gray, Agllias, Mupedziswa, & Mugumbate, 2017). Students from urban-based universities are often reluctant to take on placements in rural settings because the conditions are too demanding. They find that rural communities are “riddled with a myriad of social problems such as unemployment, high poverty levels, early school dropout, alcohol abuse, early marriages, gender based violence, HIV/AIDS etc. (Gray, Agllias, Mupedziswa, & Mugumbate, 2017, p. 631)”. Ironically, this is actually one of the advantages of the University based in a rural setting; it is surrounded by relatively poor homesteads that rely on basic subsistence farming, seasonal agricultural work and government grants for survival. These are ultimately the kinds of people who social workers are called to serve.

### **Rural Social Work Training Challenges**

Shokane, Nemutandani, and Budeli (2016) reported on the challenges faced by fourth year social work students during fieldwork practice at the University of Venda, another rural-based university. Their findings indicated challenges related to limited or inadequate fieldwork orientation and induction, and agency supervision resulting in poor student-supervisor relations. Other challenges included a lack of opportunity to integrate theory and practice, the lack of resources and limited funding for fieldwork placements. Coincidentally, Professor Shokane is now also based at UNIZULU in KwaDlangezwa, whereas the Deputy Dean of Research and a Professor of social work she is using the experience gained in one rural context to strengthen social work training in another rural-university setting.

The lack of resources is a common challenge faced by social workers who do not always have adequate access to the ‘tools of the trade’ needed to perform their duties. These include, poor office infrastructure, lack of private confidential spaces, limited telephone and internet connectivity, and car and computer sharing. These restrictions are magnified in rural contexts where the vast distances between settlements, rough roads and poor connectivity make home visits and accessing clients more of a challenge. The poverty that is endemic to this kind of rurality inhibits the personal agency of those in need of welfare services as money for transport is often directed to daily subsistence.

Based at the rural and historically disadvantaged University of Fort Hare (UFH) in Alice, Tanga, Ndhlovu, and Tanga (2020) reviewed emergency remote teaching and learning of social work training during COVID-19. They found that COVID-19 highlighted the inequalities in South African universities. It was evident that some previously white universities based in urban areas were far ahead in delivering emergency remote teaching and learning, while rural-based universities, like UFH lagged behind. This was potentially disastrous for final year students who had to complete their agency fieldwork block placements and research projects during the time of a national pandemic lockdown.

The students at the rural universities come from poor socioeconomic and disadvantaged backgrounds with limited access to basic services and student support which the pandemic has intensified. Access to the internet became a major challenge in many rural settings, this was amplified when the electricity supply was not stable, and this had a negative impact on supervision and virtual class room attendance. Great flexibility was needed and programmes had to consider the risk profile of each student and client group, and fieldwork training activities had to be done with all COVID-19 safety protocols in mind (Tanga, Ndhlovu, & Tanga, 2020).

Life in a rural environment can be very challenging; "some compounding socioeconomic risk factors affecting rural students include poverty, illiteracy, a high crime rate, violence, HIV and AIDS and orphanhood" (Machimana, Sefotho, & Ebersöhn, 2018). In addition, students at rural universities sometimes face language limitations, high university application competition, limited student funding, student protests, erratic electricity, water and internet supply, and inadequate access to computers.

High quality fieldwork experience and supervision is essential for producing quality social work graduates who will enter the social work profession (Schmidt & Rautenbach, 2016). Since there is a dearth of rural-based social service organisations within reasonable proximity to the rural campus, there is also a paucity of professional supervisors. There are examples where supervisors with very little experience are used to supervise students, simply because there are so few fieldwork placements available (Schmidt & Rautenbach, 2016).

### **School Social Work as a Possible Solution to Some of the Challenges**

There is a growing recognition of the need for social workers to be employed in schools as social workers, as part of all children's right to education (Reyneke, 2018). School social workers are seen as part of the solution to the challenges facing learners in at the pre-tertiary education level, especially in rural schools that face crumbling infrastructure and very limited social services (Pretorius, 2016). There are many rural schools within the catchment area for the rural university and they act as feeder schools to the university for future students.

To maximise fieldwork opportunities, the university has to look to rural-based schools to serve as fieldwork hosts. While 'school social work' is now officially recognised as a speciality (DSD, 2020, p. 74), school social work is still in its

infancy in South Africa and is mainly starting in urban and privileged schools, and mostly funded by wealthy governing bodies. Many school learners face psycho-social challenges that negatively impact on their learning and many school teachers carry the burden of care for the learners, and this detracts from their primary role as educators facilitating teaching and learning. The Provincial KwaZulu-Natal Department of Education, has a unit called the Special Needs Education Services (SNES).

Through their psycho-social services they focus on “addressing the emotional, behavioural and social support needs of learners that are at risk of learning breakdown, educational marginalization and school dropout” (SNES, 2022). The university considers SNES to be an important symbiotic partner to facilitate the placement of student social workers and even unemployed social work graduates in rural schools. In order to compensate for the lack of onsite social work supervisors at schools, other universities often assign university-based supervisors to settings with limited student supervision capacity (Schmidt & Rautenbach, 2016). This will certainly be the case for the majority of placements in rural-based schools.

### **The Notion of Wellbeing**

Similar to rurality, scholars tend to disagree about what is meant by wellbeing. Commonly, scholars tend to talk about the notion of wellbeing in two ways, namely, subjective wellbeing and normative wellbeing. However, within these notions there is a scope of disagreement. A general idea of wellbeing is that it is a matter of how well one is faring in life or how well life is faring for her (Lin, 2022; Burns & Crisp, 2021). However, the disagreement starts with what is important in measuring how well one is faring in life. In other words, the disagreement about the concept of wellbeing has to do with establishing what is that condition that is sufficient for determining that one is faring well in life. Even though there is a disagreement about what wellbeing means, but there seem to be an agreement about what wellbeing should be about. As Crisp (2001) asserts, “Well-being is most commonly used in philosophy to describe what is non-instrumentally or ultimately good for a person” and, “When something is directly or non-instrumentally good for a person, it increases that person’s level of well-being simply in-and-of-itself” (Raibley, 2013, p. 470). This means that wellbeing ought to be the highest good, it ought to be something that is valuable for its own sake rather than the sake of other things. The value of wellbeing, whatever it may turn out to be, as the ultimate good is that it is:

...what an egoist or purely selfish person always tries to promote for herself, and what the altruist tries to promote for others. It is what one knowingly fails to promote for oneself when engaging in self-sacrifice. It is what one tries to promote for another against her wishes when acting paternalistically. It is what is affected, for better or for worse, when one has good or bad luck. It is something that we seek to affect when we reward and punish (Campbell, 2016, p. 3).

This means that in order to know that what we have defined is wellbeing we need to observe whether that thing is something good for its own sake or something good for the sake of other thing, if the former condition is met then that what was described is wellbeing. Describing wellbeing is describing that reason that makes us to seek and secure things.

Student wellbeing is essential and many do not have this sense in a rural context and must consequently deal with the great expectations that higher education necessitates for a country which has great poverty and rife unemployment. Many students also tend to believe that obtaining a university education is essential for them to escape impending hardship. Students from non-westernised cultural backgrounds are often disadvantaged in these contexts. African students who attend universities are generally instructed in a language other than their mother tongue and this places huge stresses on them and many become extremely anxious. Some scholars tend to explain the notion of wellbeing using self-reported measures. These scholars tend to, "...define well-being as relative to the individual's experiences or desires" (Wasserman & Asch, 2014, p. 143).

A familiar self-reported measure of wellbeing is hedonism. According to hedonists, "What is intrinsically good for someone is (just) the pleasure they experience; what is intrinsically bad for someone is (just) the displeasure they experience" (Dietz, 2021, p. 387). This means that wellbeing is a matter of avoiding unpleasant mental states and having positive ones. On this theory, "Happiness is the meaning and purpose of life, the whole aim and end of human existence" (Aristotle, cited by Kesebir & Diener, 2008, p. 69; see also Prinsloo, 2013, p. 44). Therefore, pursuing happiness is not only something good in and of itself but it is something that gives meaning to life. It is something that defines what life is all about. In other words, for hedonists, the purpose of life is to be happy and independent of happiness the purpose of living is lost.

Another familiar theory which tries to explain wellbeing using self-reported measures is the desire-fulfilment theory. According to this theory, "an agent's wellbeing is constituted by the obtaining of states of affairs that are desired by that agent" (Murphy, 1999, p. 247). This means that wellbeing is a matter of getting what you want and if you are not able to get what you want it means that you are not faring well in life. In other words, for the desire-fulfilment theorists, the purpose of living is fulfilling your desires and if you cannot fulfil your desires it means that your life is not faring well for you. Therefore, the whole purpose of living is fulfilling your desires, and failure to do this it means that you have failed in life itself.

Other scholars tend to explain the notion of wellbeing in terms of social attributes and material resources. As Barnes (2016, p. 108) explains, "there are some features your life can contain that are objectively valuable or good, and which objectively make your life go well, regardless of the attitudes that you have those features". This means that the judgement on whether one has achieved wellbeing depends on particular life indicators rather than her self-evaluation. The most common idea which tries to explain wellbeing in terms of social attributes and material resources is the objective list theories. According to this

theory, wellbeing is about, "...objective measures, such as household income, happiness, achievement, educational resources and health status" (Statham & Chase, 2010, p. 2 emphasis added). On this theory, the purpose of life is being happy, getting income, being healthy, getting personal achievements and etc, otherwise the meaning of life would be lost. Achieving these life checklists is by itself something good as it defines what life is all about.

Another idea which tries to explain wellbeing in terms of social attributes and material resources is perfectionism. According to this theory, "the best life is determined by the core account of what it means to be human. Developing and exercising those properties or capacities that form what it means to be human yields a good life for a human" (Dorsey, 2010, p. 61; Hurka, 1993, p. 3; Molefe, 2020, pp. 196-197). This means that what is ultimately good for a person involves developing and exercising capacities that are deeply characteristic of human nature. Therefore, the value of perfecting your capacities and humanity is not only that it is something good in and of itself but it is also something that defines the purpose of life. In other words, without pursuing to perfect your capacities and humanities the purpose of life would be lost.

As most ideas of wellbeing, especially in Western philosophy, tend to explain wellbeing as something particular to the individual, in Africa there seem to be the idea that wellbeing is something not particular to the individual but to the community. As Menkiti (1984, p. 171) asserts, "in the African view it is the community which defines the person as person, not some isolated static quality of rationality, will, or memory", thereby, "...it is fair to conclude that the Western is individualist and that the African is communitarian" (Metz, 2015, p. 1175; Maybee, 2019, p. 289; Nicolaides, 2015, p. 196; Nicolaides, 2022, p. 2). Ake (1993, p. 243) adds that, "Africans do not generally see themselves as self-regarding atomized beings in essentially competitive and potentially conflicting interaction with others. Rather, their consciousness is directed towards belonging to an organic whole". This means that in an African setting, the notion of wellbeing is understood in relation to the social relationships rather than as tied to things that are particular to the individual such as personal income, health, achievement and desire-fulfilment. The basis of this idea is that, "the self should not and cannot meaningfully separate from social relationships because they constitute an essential part of what defines it" (Molefe, 2020, p. 64). Hence, in an African setting, "the individual can only say: I am, because we are; and since we are, therefore, I am. This is the cardinal point in the understanding of the African view of man" (Mbiti, 1982, p. 109), thereby members of the community are expected to possess the communal values such as solidarity, interdependency, mutual trust, mutual help and cooperation. What this community based idea of wellbeing implies is that the highest good, at least in Africa, is maintaining social relationships.

The criticism with the communal idea of wellbeing is that it tends to ignore what is central to the idea of wellbeing by exaggerating the significance of the community. The point here is that

Besides being a communitarian being by nature, the human person is, also by nature, other things as well. By 'other things', I have in mind such essential

attributes of the person as rationality, having a capacity for virtue and for evaluating and making moral judgments and, hence, being capable of choice. It is not the community that creates these attributes; it discovers and nurtures them. So that if these attributes play any seminal roles in the execution of the individual person's life style and projects, as indeed they do then it cannot be persuasively argued that personhood is fully defined by the communal structure or social relationships (Gyekye, 1992, p. 113).

This means that the communal notion of wellbeing overstates the role of social relationships as it seeks to assert them as the ultimate good. As Agada, and Egbai (2018, p. 149) assert, social relationships play an instrumental role as catalyst and as prescriber of norms however it is the individual's responsibility to actualise these values, Shutte (2001, p. 24) adding that, "I only become fully human to the extent that I am included in relationships with others", maintaining social relationships may be central towards securing wellbeing but it can never be that they are what wellbeing is all about as that neglects the idea that relationships are meant to secure the interests of the individuals rather than maintaining them for their own sake.

The best way to describe what is meant by wellbeing, in terms of it being the measure of how well one is faring in life and being the highest good, might be to think about it in terms of factor that allows us to make a judgement about life going for ourselves and other people. The significance of this factor is that it will reveal why we actually value the things that we normally use to make a judgement on wellbeing. As others argue that wellbeing is about objective features such as personal income, education, achievement, satisfaction, capacity to perfect the characteristics that are core to human nature and subjective features such as happiness and desire fulfilment, what then needs to be done is to evaluate whether there is anything common about all these judgements on wellbeing. For Rawls (1971), a person's wellbeing is determined by what is for them, the most rational long-term plan of life given reasonably favourable circumstances. A rational plan is a plan of life designed to meet the person's desires and interests subject to the conditions he faces, it is a plan which can allow him the harmonious satisfaction of his desires. It is that plan of desire satisfaction which cannot be improved upon, it is the person's most preferable plan among other plans. To carry out our plans, there needs to be certain primary goods. Primary goods are necessary means for carrying out our plans.

Rawls claims that primary goods are things that a rational man is presumed to want whatever their rational plan in life is. Thus, what is good for a person is the satisfaction of their rational desire formulated by their rational plan of life through the utilisation of primary goods (Rawls, 1971, pp. 92-94). Primary goods involve rights and liberties, powers and opportunities, income and wealth. With more of these goods, people can generally be assured greater chances of success in carrying out their plans (Rawls, 1971, p. 92). The question that Rawls seems not to consider is why should the person value that he or she has the most rational long-term plan of life. What is that condition that actually allows the rational long-term plan of life to manifest into satisfaction? The argument here is that there ought to be that feature that necessitates the things that we often judge as the measure for

wellbeing, and it is actually that feature which is the highest good, thereby what wellbeing is all about. Clearly, what matters about a strategy of life is not that it is the smartest, but rather that it would be one that is selected by the person whose life it is.

Life plans are not fixed and singular but are multiple and constantly shifting. He says that plans of life are a way of integrating one's purposes over time, and of fitting together the different things one values (Rawls, 1971). However, what actually gives value to the life plans as a way of integrating your purposes over time is the space or opportunity given to it. In other words, the space or opportunity given, particularly by yourself and sometimes by the community, is actually what makes it possible for a person to, for example, get personal income, be happy, be satisfied, have a desire to fulfil your goals and act on your capacities and humanity. When this space gets closed, then it is where unhappiness, the interest in acting on your desires, capacity and humanity is abandoned. Thereby, by the virtue of that the space or opportunity that one or the society allows on herself is what actually causes the things the we normally associate with wellbeing to exist, it therefore need to be argue that if wellbeing ought to be understood as the ultimate or the highest good, then it is the space or opportunity that we allow or allowed to us that actually describes what wellbeing is about. In other words, it catches the essence of what do we mean when we say that one is faring well in life or her life is faring well for her.

South African rural students arriving at universities come in from positions of extreme inequality. This is for the most part based on their schooling status, race, social class and lack of financial and other needed resources. There is also a deficiency in the provision of quality teachers and related aspects so those from disadvantaged backgrounds have very little feeling of wellbeing. While the scenario is slowly changing for the better, education still continues to be structured on racial and class lines, because of the exposed economic and cultural status. Also the reason that students from rural areas tend to limit themselves in terms of what to study at tertiary level is because they have never been allowed to have the space to know and engage other options on what to study (Griffin, Hutchins, & Meece, 2011). In other words, the students, by virtue of them being from the rural areas are automatically disadvantaged in terms of accessibility.

## **Conclusion**

It is evident that Post-apartheid South Africa needs to provide an enabling environment for the realization of previously stifled potentialities including support for academic freedom, providing of space for creativity and innovation, progressive legislative and policy framework, opportunities to access technology that can break existing spatial isolation and above all a vision that encourages the recognition of indigenous knowledge systems and the creation of trust among all stakeholders. We need to also be cognisant of the fact that there is also a problem of marginalization and privilege in urban settings where in less affluent areas, the facilities are inferior and numerous other disadvantages manifest. Thus, any

desired upward mobility for students from impoverished areas is challenging to say the least. School social workers are considered to be a part of the solution to the challenges facing learners in at the pre-tertiary education level. We hope our brief discourse will serve in even a small way to add some value to the issues discussed and mobilize higher education to a necessary re-alignment in thinking on rurality and higher education and indeed all education. Positive changes need to come to education in rural areas and this should be in pioneering and useful ways. Thus, the education system for rural students must be improved. Education providers must be equipped with contemporary infrastructure, and innovative learning methods and the lack of resources available must be a priority of government. Quality education must be available and accessible to all rural students.

What has been argued above is that rurality can be defined in terms of accessibility, this may include opportunity, security, health, and services. As long as there is limited access or the access is non-existent, then we can describe that place as rural as opposed to urban. What has also been argued is that wellbeing is about the space or opportunity allowed or that one allows to his or herself which can then necessitate life satisfaction, income, desire-fulfilment, personal perfection, achievement and etc. If it is true that rurality means limited or none-accessibility and that wellbeing means the space or opportunity that one allows to herself, then what does it mean for rural students in higher learning. From these two premises the conclusion can be made that for rurality limits, even eliminate, the options that one or the society can open up the space or opportunity for. Meaning that, because rurality means limited or none-access, then the options that the student would have allowed herself the space or opportunity to be part of are limited or eliminated.

Finally, it "is imperative that higher educational institutions in rural-based universities should promote an environment that is conducive for learning to deal with the injustices of the past, which are a legacy of the history of colonialism and apartheid. This has to be ensured in order to respond to the local needs of students in rural areas" (Shokane, Nemutandani, & Budeli, 2016, p. 158).

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## **Portrayal of Bullying in Selected Picture Books: A Content Analysis**

*By William Bintz\**

This article discusses findings and implications from a research study using content analysis to investigate one question: How is bullying portrayed in selected picture books? The question is important because bullying has been, and continues to be, a pervasive problem in and out of school. This research study is needed because it investigates portrayals of the bully, bullied, and bystanders, unlike previous research that focused only on the bully. This article provides a review of research on bullying, highlighting international and national research that used content analysis to analyze picture books on bullying. It discusses content analysis as the research methodology, and describes data sources, data categories, data collection methods, and data analysis procedures. It ends by identifying major findings, discussing implications of findings, and describing limitations of the study.

*Keywords:* bullying, portrayal, picture books, content analysis

### **Introduction**

Bullying has been, and continues to be, a significant and pervasive problem in and out of school (National Academies of Sciences, Engineering, and Medicine, 2016). In fact, instances of bullying today are on the rise, so much so, that it is considered a serious public health problem by the Center for Disease Control and Prevention (2006). In school, teachers often use picture books that deal with bullying “to address, and perhaps deter, this behavior...knowing that in the hands of the right teacher at the right moment, a picture book can be a powerful tool for engaging students in dialogue that either ends the bullying or gives victims and bystanders the knowledge and confidence to face it” (Entenman, Murnen, & Hendricks, 2005, p. 362). At the same time, teachers also understand that selecting appropriate picture books on bullying is as important as using them with students.

Selecting appropriate picture books on bullying is complex. Teachers need to consider type (fiction or nonfiction) and content of the book (physical, emotional, psychological, cyber bullying), context of bullying (in school or out of school), and how the bullying is resolved or unresolved (bullying stops or continues). A good start is to analyze portrayals of bullying in picture books. This analysis provides information to help teachers select picture books that will help students better understand, recognize, and, ultimately, prevent bullying in and out of schools (Daniel, 2014).

This research study investigated one question: How is bullying portrayed in selected picture books? The purpose of this study was to conduct a content analysis of the portrayal of bullying in selected picture books, and present findings

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\*Professor, Kent State University, USA.

from this analysis that will provide K-8 teachers understandings and insights for selecting picture books on bullying to share with students.

This article begins by describing the operational definition of bullying used in this study, followed by a description of the problem. Next, it provides a review of research on bullying, highlighting international and national research that used content analysis to analyze picture books on bullying. Then, it describes the significance of the study, identifies the research question, discusses content analysis as the research methodology, identifies the research team, as well as describes data sources, data categories, data collection methods, and data analysis procedures. It ends by discussing major findings and implications of findings and identifying limitations of the study.

### **Operational Definition**

Bullying is complex, and therefore is defined in multiple ways. It is defined as “a specific type of aggression in which behavior towards others is intended to harm, occurs repeatedly over time, and involves an imbalance of power in which the person with power attacks the less powerful victim” (Nansel et al., 2001, p. 2095). It is also defined as “a pattern of repeated physical or psychological intimidation” (Beane, 2011, p. 5), deliberate, repeated, aggressive behavior against an individual who finds it difficult to defend him-or herself (Olweus, 1999). In the context of school it is defined as a student “being exposed, repeatedly and over time, to negative actions on the part of one or more students” (Olweus, 2001, p. 9).

In this study bullying is operationally defined as “any unwanted aggressive behavior(s) by another youth or group of youths who are not siblings or current dating partners that involves an observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated...bullying may inflict harm or distress on the targeted youth including physical, psychological, social, or educational harm” (National Academies of Sciences, Engineering, and Medicine, 2016, p. 3). This definition was used for several reasons. First, the National Academies of Science, Engineering, and Medicine is a national, highly reputable professional organization with an extensive and impressive history of research across a variety of sciences. Second, it provides one of the most recent, updated, and comprehensive definition of bullying. Finally, after researching and discussing a variety of definitions, the research team believed that this definition of bullying was the easiest and most effective definition to operationalize, especially when applying it to picture books.

### **Description of the Problem**

In the context of school, bullying is a significant and pervasive problem in and out of school. It begins in preschool, increases throughout elementary school, peaks in middle school, affects nearly one in three middle school children, and is considered the most prevalent form of youth violence (Juvonen & Graham, 2014).

It is also referred to as peer victimization and crosses different age ranges and cultures.

Bullying is prevalent in school (Andreou & Bonoti, 2010), making school an unsafe place for the bullied (Eleni, 2014). Over twenty years ago, Banks (1997) found that as many as 7% of 8<sup>th</sup> graders do not go to school and stay at home at least once a month because of bullying. Since that time, little has changed; in fact, bullying has become worse. Students' concerns at school continue to "revolve around safety as much as achievement, as the perpetrators of peer harassment are perceived as more aggressive and the victims of their abuse report feeling more vulnerable" (Graham, 2010, p. 66). Today, bullying is so serious that approximately "...160,000 kids skip school every day for fear of being bullied and 280,000 students are physically attacked in schools every month" (Bennett, 2018).

Many attempts have been made to stop bullying. In the United States all fifty states have passed laws against bullying and websites have been developed to help individuals and families combat bullying (National Academies of Sciences, Engineering, and Medicine, 2016). In addition, public schools and school districts have developed policies to combat bullying in classrooms and on school grounds. Schools have purchased or developed anti-bullying programs that specifically encourage students to turn to teachers if they are bullied. When reported, student suspension and related exclusionary techniques remain the default response by school staff and administrators in bullying situations. These responses, however, do not appear to be effective and may result in increased academic and behavioral problems for youth. In the end these efforts, and others like them, have produced minimal, if any, change in bullying behaviors (Merrell, Gueldner, Ross & Isava, 2008).

In addition, bullying remains a persistent problem for many individuals and groups of individuals, especially disenfranchised and marginalized groups, and results in devastating and long-term physical, psychological, social, or educational harm (National Academies of Sciences, Engineering, and Medicine (2016). In fact, many individuals "remain haunted by the humiliation long into adulthood" (Weissbourd & Jones, 2012, p. 27) and struggle with health concerns like depression, anxiety, panic disorders, and fear of being out in public (Public News Service, 2013).

### **Research on Bullying**

Much research has been conducted on the topic of bullying. Historically, research was first conducted in Scandinavia and resulted in many ground-breaking studies that later influenced and encouraged research on bullying in the United States.

#### **Research in Scandinavia**

In the early 1970s Olweus (1986), a Scandinavian researcher and often referred to as a pioneer and founding father on bullying research, conducted the

first systematic research study in the world on bullying. This study was significant because, prior to the early 1990s, research on the topic of bullying outside of Scandinavia was very limited (Olweus, 2007).

In the 1980s Olweus (1993) surveyed more than 150,000 Scandinavian students and found that approximately 15% of students ages 8–16 were involved in bullying, either as bullies, victims, or both bully and victim. Findings also indicated that “approximately 9% of all students were victims and 6–7% bullied other students regularly...only a small proportion of the victims also engaged in bullying other students” (Olweus, 2003, p. 48).

These studies are important because they found common types of bullying, including verbal bullying, spreading rumors, sexual bullying, racial bullying, physical bullying, and cyber bullying (Luxenberg, Limber, & Olweus, 2015). Although these studies were conducted in Scandinavia, other research has been conducted that investigated bullying across cultures. Due and Holstein (2008) reported that “although rates of involvement in bullying vary between cultures, in a survey of 66 countries it was found that on average 31% of adolescents surveyed had experienced peer victimization within the past two months, with rates as high as 60% in some countries” (p. 692).

### **Research in the United States**

Much research has been conducted in the United States on bullying, especially in the context of schooling. In 2001, Olweus (2003) conducted a survey on bullying that involved approximately 11,000 students in the United States from 54 elementary and junior high schools and found that “the percentage of victimized students had increased by approximately 50% from 1983, and the percentage of students who were involved (as bullies, victims, or bully-victims) in frequent and serious bullying problems—occurring at least once a week—had increased by approximately 65%” (p. 49). Similarly, Nansel, et al. (2001) found in a national study involving more than 15,000 U.S. students in grades six through ten that 17% of students reported being bullied during the school year. Approximately 19% said they bullied others and 6% reported bullying others and being a victim of bullying. Blossnich and Bossarte (2011) found that approximately 3.2 million children in the United States in grades six through ten are estimated to be bullied every year, making bullying the most prevalent form of school violence. Rivara and Le Menestrel (2016) found that “school-based bullying likely affects between 18 and 31% of children and youth, and the prevalence of cyber victimization ranges from 7 to 15% of youth” (p. 2). Lastly, the U.S Secret Service and the U.S. Department of Education (2018) investigated 37 school shootings and found that about two-thirds of student shooters felt bullied, harassed, threatened, or injured by others (American Psychological Association, 2018).

### **Content Analysis**

A limited number of studies exist that used content analysis as a research methodology to analyze picture books dealing with bullying themes. Of these,

many studies have been published in education and library science journals (Flanagan et al., 2013; Quinn et al., 2003). These studies found the importance of picture books to teach about, and intervene in, bullying situations, as well as teach important information about bullying.

Oppliger and Davis (2016) conducted a content analysis on picture books for preschoolers and found that bullies were twice as likely to be male, although the sex of victims was evenly split between males and females. Teasing and name calling were the most prevalent types of bullying, and female perpetrators were just as likely to physically bully their victims as male perpetrators. Moulton, Heath, Prater, and Dyches (2011) conducted a content analysis of thirty-eight picture books published from 2004-2010 and found that most books featured male bullies with both female and male victims. These victims were bullied because of differences in height between the bully and the bullied, with the bullied physically shorter and smaller than the bully. Others were bullied because of differences in personality traits, personal and social behaviors, and physical characteristics other than height.

Some studies used content analysis on picture books dealing with bullying themes specifically focused on coping strategies used by the bullied (Kochenderfer-Ladd, 2004; Entenmen, Murnen, & Hendricks, 2005). Flanagan, et al. (2013) found that the bullied used 22 different coping strategies to combat bullying. These strategies included bystander-intervention, active acceptance, befriending, tricking and scaring the bully, and verbal confrontation. The bullied used violence as the most common coping strategy, and in one-third of the stories, the victim stopped the bullying through counterattack and revenge. Overall, these studies found that coping strategies vary in effectiveness at reducing future bullying.

Other studies used content analysis to analyze how bullying episodes were resolved at the end of the story. In an analysis of 33 picture books with bullying themes, Daniel (2014) found five major categories for resolving bullying episodes. These categories included: victim stands up to the bully; parent or authority figure intervenes in the bullying situation; bully apologizes for the bullying behavior and the story ends happily; bully gets what he/she deserves; and resolution to the bullying behavior was not evident in the story.

### **Major Findings Across Content Analysis Studies**

There are several major findings across studies that used content analysis to analyze picture books with bullying themes. One finding is that bullying is a sensitive issue, especially for young children and, therefore, picture books often use animals, rather than humans, as main characters. Oppliger and Davis (2016) note that picture books often use “illustrations of anthropomorphized animals and other creatures that are likely to shield children from identifying too closely with the stories’ victims who are experiencing distress” (p. 516).

Another finding is that picture books are important because students as young as preschool age, but as old as high school and even college, learn from these books on how to identify and respond to bullies (Freeman, 2014). These books are also valuable because they are effective at teaching empathy. Often, children who

bully others experience enjoyment in exercising power and status over victims (Rigby, 1998), and fail to develop empathy for others (Olweus, 1984). Picture books can help students experience vicariously, through bullied characters, what it can feel like to be bullied (Nikolajeva, 2013). Making empathetic connections from picture books with bullying themes helps students learn about bullying. They often tell engaging stories in which the bullied comes to realize that bullies are the minority and peers and bystanders are the majority. They emphasize that the bullied is not alone and isolated, and that bystanders and peers are valuable resources in bullying situations.

Still another finding from all the studies that used content analysis on picture books with bullying themes is that teachers are an important component of any multicomponent schoolwide program to combat bullying. Teachers can help students learn coping strategies for dealing with bullying behavior (Freeman, 2014). Specifically, teachers can use literature, particularly picture book stories with bullying themes, as a curricular and instructional resource to combat bullying (Quinn et al., 2003). Bullying experts, practitioners, and laymen all recognize “the value of utilizing stories in helping children cope with bullying” (Heath et al., 2011, p. 12). Teachers can use picture books to help students understand bullying and its harmful effects and set a positive classroom environment (Freeman, 2014).

A final finding is that it is important for teachers to be able to carefully select and use picture books in the classroom to combat bullying. Teachers need to be aware of the number and variety of books that can be used to discourage bullying among young children so they can carefully screen picture books before selecting and sharing them with children (Flanagan et al., 2013). Carefully selected picture books should promote healthy interpersonal relationships (teacher/student and student/student) and encourage prosocial behavior, such as kindness, inclusiveness, and empathy—critical ingredients in sensitively responding to other’s feelings, rather than antisocial and aggressive behavior, like bullying (Henkin, 2005). What is most important is that the core messages in a picture book “should align with expectations for desired behavior, particularly how bullying is resolved and how adults, victims, and bystanders respond” (Heath et al., 2011, p. 12).

### **Significance of Study**

This study is significant for several reasons. Only a limited number of studies have used content analysis as a research methodology to analyze picture books with bullying themes, and of those, these studies focused on picture books primarily for very young children in preschool and primary grades, K-2. This study used content analysis of picture books to focus on a wider range of grade levels, K-8, highlighting two grade bands: PK3: Preschool through grade 3 and MG: Middle Grades, 4-8. Moreover, previous studies used content analysis of picture books to focus mostly on the bullied. This study used content analysis of picture books to focus on the bully, bullied, and bystanders. Lastly, previous studies used content analysis of picture books to focus on one category of bullying, namely, coping strategies used by the bullied. This study used content analysis of picture books to

examine multiple categories, e.g., characteristics of the bullied and bully, context for bullying, and presence of bystanders, etc.

### **Research Methodology**

This study used content analysis as the research methodology. Content analysis is a qualitative research methodology that focuses on describing and interpreting written artifacts (Krippendorff, 2018). It “involves the inspection of patterns in written texts, often drawing on combinations of inductive, deductive, and abductive analytical techniques” (Hoffman, Wilson, Martinez, & Sailors, 2011, p. 29). The goal of content analysis is to generate “knowledge and understanding of the phenomenon under study” (Hsieh & Shannon, 2005, p. 1278). Here, the phenomenon and unit of study was a picture book on the topic of bullying.

This study followed specific steps for conducting qualitative content analysis (Wildemuth, 2009). These steps included: prepare the data set, define the unit of analysis, develop categories and coding scheme, test coding scheme on sample of text, code all texts, assess coding consistency, draw conclusions from coded data, and report methods and findings.

### **Research Team**

A total of 18 individuals participated in data collection. These participants included one principal researcher, one assistant researcher, two graduate research assistants, and fourteen graduate students. The principal researcher is a professor in literacy education at a large midwestern university. The assistant researcher is an assistant professor in literacy education at a regional, midwestern university. The two research assistants and fourteen other participants are graduate students pursuing a masters of reading specialization degree at the same large midwestern university as the principal researcher.

### **Data Source**

The data source was a collection of 124 picture books with bullying themes. This source represented a sample of convenience. The two principal investigators possess extensive collections of picture books that each uses when teaching their respective undergraduate and graduate classes. These investigators searched their collections and selected picture books based on specific criteria developed by the research team. Table 1 illustrates criteria used to select picture and an example of each criterion.

Table 1. Criteria for Selection and Example of Picture Book

Criteria	Example
Books are picture books that contain traditional story elements.	<i>The Recess Queen</i> (O'Neill, 2002)
Books are narratives, fiction or nonfiction.	<i>The Bully and the Shrimp</i> (Allison, 2014)
The words "bully", "bullied", and "teasing" are included in the title, e.g., or; the words "bully," "bullied" or "teasing" were included in the synopsis for the book, but not in the title, or; words "bully", "bullied", and "teasing" are not in the title or the synopsis but the book addresses bullying in the narrative.	<i>Bobby the Blue-Footed Booby Gets Bullied?</i> (Bowles, 2016)
Books are appropriate for grades K-8.	<i>Leave Me Alone</i> (Gray, 2011)
Books are readily accessible and available to teachers. No rare or out-of-print books. No self-published books. No books published in electronic forms.	<i>Nobody Knew What To Do</i> (McCain, 2017)
Books do not deal with sibling rivalry.	<i>Karate Girl</i> (Leary, 2003)
Books are not published in commercial programs or anthologies.	<i>Henry and the Bully</i> (Carlson, 2010)

### Data Categories

In content analysis methodology, analytical constructs may be formulated in three ways: previous research, knowledge and experience of experts, and existing practices or theories (White & Marsh, 2006). The principal investigators used previous research to develop a set of a-priori categories that functioned as the focus for the content analysis of picture books. The rationale for categories was that adapting or "adopting coding schemes developed in previous studies has the advantage of supporting the accumulation and comparison of research findings across multiple studies" (Wildemuth, 2009, p. 311). These a-priori categories were found in a review of the professional literature (Wiseman & Jones, 2018).

In addition to a-priori, other categories were added by the research team. These categories were added because they reflected personal interests about bullying shared by members of the team and were intended to broaden and extend the a-priori categories found in the professional literature. In the end, a combined total of 19 descriptive and interpretive categories were the focus of analysis. Descriptive categories included range of copyright dates, grade bands, race or ethnicity of bully and bullied, bully as bullied, gender of bully and bullied, primary focus, frequency of bullying, presence of bystanders, number of bystanders, context for bullying, and cyberbullying. Interpretive categories included identity of bully, characteristics of bully, behavior of bully, identity of bullied, characteristics of bullied, coping strategies used by bullied, identity of bystander, characteristics of bystander, and bystander response to bullying.

## **Data Collection**

Data collection was a multi-stage process. Stage 1: All members of the research team were organized into pairs (8 pairs), not including the principal investigators. Stage 2: Each pair randomly selected approximately fifteen picture books, out of an initial total of 135, and spent time browsing each book. Pairs browsed each book looking for text evidence that indicated each book met all criteria. Books that did not meet all criteria were withdrawn. If any book was deemed questionable in terms of meeting all criteria, members shared this book with another pair of members. The other pair browsed the book and discussed it with the first pair to make a determination as to whether the book did or did not meet all criteria. Based on this discussion, both set of pairs decided whether the book should be included or withdrawn from the data set. If both pairs could not agree to include or withdraw the books, both principal researchers read and discussed the books and made the final determination. Using this process, a total of 11 picture books in the end were excluded from the original total of 135 picture books, making the final data set a total of 124 picture books.

Stage 3: After browsing, each pair rotated their collection of books to a different pair of members. Then, each pair spent time browsing each book in the new set to determine the appropriate grade band (PK3: Preschool through Grade 3 or MG: Middle Grades 4-8) for each book. Each pair identified and discussed factors such as the age (or reasonable approximation) of the bully, age of the bullied, story setting, and type of bullying, as well as recommended grade levels specified by the publisher, identification of Lexile scores, and other information about the book that helped determine grade band. Each pair discussed each book, reached consensus, and recorded the grade band for each picture book. When books were questionable, the same process described in stage two was used again. However, additional books were not withdrawn from the data set.

Stage 4: The principal investigators created an Excel spreadsheet that identified and organized all 19 categories. This spreadsheet functioned as a shared organizational device for members of the research team to code and record data collected on each picture book. The principal investigators digitally shared the Excel spreadsheet with all members of the research team.

Stage 5: Before data collection began, the principal investigators selected one picture book from the data set and read aloud the book to the research team. Afterwards, this book was utilized to demonstrate how to code and record data on the Excel spreadsheet. The principal investigators facilitated a discussion with, and invited questions from, the research team and also invited them to ask questions in order to ensure that all members clearly understood the data collection, coding, and recording process.

Stage 6: Lastly, each pair selected a set of picture books based on a specific grade band. Each pair read the books separately, and afterwards met to discuss, collaboratively code, and record data on the Excel spreadsheet based on all categories for each book. All pairs continued this data collection process until all 124 picture books had been read, discussed, and coded on the Excel spreadsheet.

## **Data Analysis**

Data analysis was conducted by four members of the research team: the principal researchers and two graduate students who also participated in data collection. All members of the research team were invited to participate in data analysis and two accepted. The unit of analysis was a picture book, and the focus was on how bullying was portrayed across books in the data set. Data analysis was qualitative and collaborative and focused on using a-priori and other categories to create descriptive and interpretive findings. As with data collection, data analysis involved a multi-stage process.

Stage 1: Members of the data analysis team focused on analyzing each of the nineteen categories separately. Stage 2: Members read all data collected in each category without pausing at any point for reflection or stopping to record preliminary impressions of the data. At this stage, the purpose was for members to create an overall impression of the data for each category. Stage 3: Members read all data collected in each category once again. This time, however, members paused while reading to reflect on the data and record preliminary impressions. At this stage the purpose was for members to write short summaries of preliminary impressions of the data for each category. Stage 4: Members met regularly to share, discuss, and reflect on individual summaries of preliminary findings. The purpose of these meetings was to reach group consensus on findings for each category. Stage 5: This process continued until all members reached group consensus for all nineteen categories.

## **Findings**

Findings are presented across two categories: descriptive and interpretive.

### **Descriptive Findings**

Descriptive findings were based on analysis of data in the following categories: range of copyright dates, grade band, race or ethnicity of bully and bullied, bully as bullied, gender of bully and bullied, primary focus, frequency of bullying, presence and number of bystanders, context for bullying, and cyberbullying.

#### ***Range of Copyright Dates***

The purpose of analyzing copyright dates was to determine to what extent picture books in the data set were not recently published, somewhat recently published, or recently published. The copyright date of each book was recorded with the code as either published recently, not recently, or somewhat recently. All copyright dates were identified, recorded, and organized the by decade. Table 2 illustrates copyright dates ranging from 1960-2010.

Table 2. Range of Copyright Dates

Decade	Frequency	%
1960	1	1.1
1970	3	2.1
1980	10	8.1
1990	25	20.2
2000	47	37.9
2010	38	30.6
TOTAL	124	100.0

Of 124 picture books published across six decades, a total of 4 (3.2%) books were published in the 1960-1970 decades and were categorized as not recently published. Of the remaining 120 books, a total of 35 (28.3%) books were published in the 1980-1990 decades and were categorized as somewhat recently published. The remaining 85 (68.5%) books were published in the 2000-2010 decades and were categorized as recently published.

*Grade Bands.* The purpose of analyzing grade bands was to determine the targeted audience for the books., e.g., preschool to grade 3 or middle grades 4-8. A grade band was determined from a variety of factors, such as portrayal of a general age of characters, simplicity and complexity of language, publisher suggested reading grade levels, simplicity or difficulty of plot, and characteristics of settings. Table 3 illustrates findings from an analysis of grade bands. Most picture books targeted the grade band of preschool through grade 3.

Table 3. Grade Band

Grade Band	Frequency	%
PK3: Preschool to grade 3	88	71
MG: Middle grades 4-8	36	29
TOTAL	124	100.0

### *Race or Ethnicity of the Bully*

The purpose of this category was to analyze the race or ethnicity of the bully and bullied. Table 4 illustrates that the bully was portrayed as Caucasian more than other races or ethnicities. Similarly, Table 4 illustrates that the bullied was portrayed primarily as Caucasian, then African American, Asian, Caucasian, and Hispanic.

Table 4. Race or Ethnicity of Bully

Race or Ethnicity	Frequency	%
African American	4	3.2
Asian	3	2.4
Caucasian	55	44.4
Hispanic	1	8.0
Other	61	33.9
TOTAL	105	84.7
Note: "Other" included nonhuman characters		

### ***Bully as Possibly Bullied***

The purpose of analyzing the bully as possibly bullied was to portray a possible cause for bullying, such as, the bully engaged in bullying because s/he was also bullied. Table 5 illustrates that 10% of picture books portrayed a possible cause of bullying was due to being bullied at some time.

*Table 5. Bully as Possibly Bullied*

<b>Bully as Possibly Bullied</b>	<b>Frequency</b>	<b>%</b>
No	111	89.5
Yes	13	10.5
TOTAL	124	100.0

### ***Gender of Bully and Bullied***

The purpose of this category was to analyzing gender of the bully and bullied. Table 6 illustrates that the bully was portrayed as male more than female.

*Table 6. Gender of Bully*

<b>Gender of Bully</b>	<b>Frequency</b>	<b>%</b>
Female	28	22.6
Male	73	58.9
Neither	23	18.5
TOTAL	124	100.0

*Note:* "Neither" included nonhuman characters.

Similarly, Table 7 illustrates that the bullied was portrayed as male more than female.

*Table 7. Gender of Bullied*

<b>Gender of Bullied</b>	<b>Frequency</b>	<b>%</b>
Female	37	29.7
Male	67	59.2
Neither	20	16.1
TOTAL	124	

*Note:* "Neither" included nonhuman characters.

### ***Primary Focus***

The purpose of analyzing of this category was to determine whether the primary focus of the picture book was on the bully or the bullied, or both. Table 8 illustrates that the primary focus was placed on the bullied, secondarily on both the bully and the bullied, and less on the bully.

Table 8. Primary Focus

Primary Focus	Frequency	%
Bully	20	16.1
Bullied	79	63.8
Both	25	20.1
TOTAL	124	100.0

***Frequency of Bullying***

The purpose of analyzing the frequency of bullying was to determine whether bullying was portrayed as a single instance or repeated instances over time. Table 9 illustrates that bullying was portrayed as a frequent and repetitive act occurring over time, rather than a single, isolated incident.

Table 9. Frequency of Bullying

Frequency of Bullying	Frequency	%
Single	20	16.1
Repetitive	104	83.9
TOTAL	124	100.0

***Presence and Number of Bystanders***

The purpose of analyzing bystanders was to portray presence and number of bystanders during bullying. Table 10 illustrates that at least one bystander was present most of the time when bullying incidents occurred.

Table 10. Presence of Bystanders

Presence of Bystanders	Frequency	%
No	31	25.0
Yes	93	75.0
TOTAL	124	100.0

Table 11 illustrates a numeric range of bystanders present during incidents of bullying, ranging from one bystander to more than five.

Table 11. Range of Bystanders

Number of Bystanders	Frequency	%
1	19	15.3
2	12	9.7
3	9	7.3
4	5	4.0
5 or more	48	38.7
None	31	25.0
TOTAL	124	100.0

### ***Context for Bullying***

The purpose of analyzing context for bullying was to determine a context, a sense of the place and situation, where bullying occurred. Table 12 illustrates a variety of contexts in which incidents of bullying occurred. School was a major context. A total of 71 picture books portrayed incidents of bullying in the classroom, at school, and on school grounds.

*Table 12. Context for Bullying*

<b>Context for Bullying</b>	<b>Frequency</b>	<b>%</b>
Classroom	4	3.2
Community	18	14.5
Neighborhood	15	12.1
School	31	25.0
School Grounds	36	29.0
Other	20	16.2
TOTAL	124	100.0

### ***Cyberbullying***

The purpose of analyzing cyberbullying was to determine the use of technology as a tool for bullying, if at all. Table 13 illustrates that cyberbullying was infrequently portrayed across the picture books.

*Table 13. Cyberbullying*

<b>Cyberbullying</b>	<b>Frequency</b>	<b>%</b>
Yes	5	4.0
No	119	96.0
TOTAL	124	100.0

## **Interpretive Findings**

Interpretive findings were based on analysis of categories including identity of bully, characteristics of bully, behavior of bully, stigma of bullied, identity of bullied, coping strategies used by bullied, characteristics of bullied, coping strategies used by bullied, identity of bystander, characteristics of bystander, and bystander response to bullying.

### ***Identity of Bully***

The identity of the bully was recorded as either human or nonhuman. Most bullies were portrayed as human, and specifically students and classmates. Moreover, they were portrayed as notorious children in the neighborhood and community with a history of bullying. Nonhuman bullies were mostly animals, including guinea pigs, bulls, foxes, dogs, fish, crabs, raccoons, mice, gorillas, bears, and crocodiles, roosters, goats, and ducks.

### ***Characteristics of Bully***

In the PreK-3 grade band (PK3), a total of eighteen different words were used to portray the bully. The most common words were *big* and *mean*, followed closely by *bossy* and *strong*. Other words included *ornery*, *scary*, and *liar*. In the Middle Grades grade band (MG), the most common word used to portray the bully was *mean*, followed by *big*, *tall*, *huge*, and *fat*, followed by *rude* and *uptight*.

### ***Behavior of Bully***

Across both grade bands, the behavior of the bully was portrayed as a person who possessed an unwillingness or inability to tolerate differences, specifically physical, social, and cultural differences. Physically, bullies used their physical size and appearance to bully others. Socially, bullies were portrayed as having few, if any, friends and possessing low self-esteem. They were portrayed as people who felt different than others, jealous of others, awkward around others, and inadequate in some way. To compensate for feeling different, bullies engaged in bullying to exert power over others.

In the PreK-3 grade band, the behavior of the bully was primarily portrayed as a person who bullied because they were physically *big* and imposingly *large*. The bully wanted and needed to feel powerful and tough. Consequently, they acted mean and bragged incessantly. Moreover, bullies bullied other people because they wanted something that belonged to someone else, typically a valued object, e.g., food, sporting equipment, piece of clothing. Bullies also bullied other people because they had no friends, struggled to make new friends, and turned to bullying to compensate for having no friends.

In the Middle Grades grade band, the behavior of the bully was portrayed more by social attitudes than physical differences. Unlike the PreK-3 grade band, bullies bullied because they thought bullying was cool and wanted to feel powerful. They also bullied to be *mean* and to *exclude* by not including those they considered to be different. Bullies also bullied out of *jealousy*. They did not want another person to gain a status greater than what they perceived to be their own.

### ***Identity of Bullied***

The bullied was portrayed mostly as a single individual who was also a friend or acquaintance of the bully. In other instances, the bullied was portrayed, not as a single person, but as a group of people. For example, the bullied was portrayed as an entire class of students.

### ***Characteristics of Bullied***

The bullied were portrayed by several physical characteristics and social situations. These characteristics portrayed the bullied as vulnerable, and a target for bullying. In terms of physical characteristics, common reasons victims were bullied included *having big feet*, *being small*, *having freckles or red cheeks*, and

being *hairless*. Other reasons dealt with physical appearance, such as *being small* and *being clumsy*. Social situations included living conditions, such as *living in a junkyard*, *wearing old clothing*, *having to wear a shabby coats because they were poor*, *being in poor health*, *having poor vision and needing glasses*.

Social characteristics focused on personality issues of the bullied and included being *wimpy*, *a sissy*, and *a crybaby*, as well as *being new to a school*, *a neighborhood*, or *a community*. Boys were specifically targeted for bullying when they *did not conform to gender norms*.

### ***Coping Strategies of Bullied***

The bullied used a variety of coping strategies. They included *tell an adult*, *avoid the bully*, *stand-up to the bully*, *ignore the bully*, *befriend the bully*, *fight back*, *trick the bully*, *develop self-confidence*, *gang-up on the bully*, *change self*, *isolate self from others*, *yield to bully*, *become a bully*, and *join the bully*.

### ***Identity of Bystander***

Most picture books included at least one bystander. Five types of bystanders were found: classmates, family members, teacher/ school staff, community members, and friends. More bystanders were portrayed in the PK-3 books than the Middle Grades grade band books.

### ***Characteristics of Bystander***

Characteristics of bystanders were portrayed in several different ways. The most common characteristics were described as *supportive*, *defensive*, *fearful*, *ignoring the bullying*, and *befriending the bully*.

*Bystander Response to Bullying.* A total of seven categories were found on the portrayal of bystander response to bullying. These included *doing nothing*, *laughing*, and *joining in with the bully*, *standing-up for the bullied*, *reacting emotionally*, *being frightened and scared*, *giving advice*, and *showing kindness*. The portrayal of bystander response to bullying was mostly positive. Bystander intervention resulted in the decrease or stoppage in bullying, the bullied became friends with the bully, the bullied experienced positive feelings, such as increased *confidence*, *pride*, *respect*, *support*, and *reassurance*.

In addition, a few books portrayed bystander intervention as ineffective and inconsequential. The intervention was portrayed as ineffective because verbal and physical bullying continued. In other picture books, no bystander intervention was portrayed, and bullying continued.

## **Conclusions**

This section discusses major conclusions across five headings: 1) general, 2) bully, bullied, and bystander, 3) bullies, 4) bullied, and 5) bystander.

## General

In general, picture books in this study were found to be recently published. A total of 85 out of 124 (68.5%) picture books were published between 2000-2010, and 110 out of 124 (88.7%) were published between 1990-2010. Thus, most picture books provided reasonably contemporary, rather than outdated, portrayals of bullying situations.

Findings from grade bands were unexpected. Previous studies on bullying found most picture books were targeted for very young children. (PK3). This study analyzed picture books across two grade bands, Preschool through Grade 3 and Middle Grades 4-8, and, like previous studies, found most picture books targeted the Preschool through Grade 3 grade band. Specifically, 71% were found to target this grade band, whereas only 29% targeted the Middle Grades 4-8 grade band.

This finding was unexpected because much research indicates bullying occurs across multiple grade bands. Juvonen and Graham (2014) found that bullying starts as early as preschool, increases throughout elementary school, and peaks in middle school. Because bullying peaks more in middle than primary grades, it was expected that more picture books would be found that targeted the Middle Grades 4-8 grade band. For the most part, the opposite was found. Two possible hypotheses for this finding might be because the data set was based on a sample of convenience, as well as the Middle Grades 4-8 grade band might not reflect the overall commercial target market for picture books.

Findings from an analysis of cyberbullying were also unexpected. In general, cyberbullying is the use of electronic communication devices to intentionally bully. Technology has been, and continues to be, used pervasively in society. Thus, it was expected that picture books would be found on this topic. The opposite was found. Few picture books were found that portrayed bullies using technology to cyberbully other persons. Only 4% of all picture books portrayed bullies participating in the act of cyberbullying.

In terms of contexts or settings for bullying, Olweus (1993) found that most bullying incidents occurred in unstructured settings. Unstructured settings were places that are not formally organized and involved little or no direct adult supervision. This study also found that most bullying incidents were portrayed in unstructured settings. These settings were mostly school hallways and school grounds and with little, or no, direct adult supervision going on at the time. Other unstructured settings included the neighborhood and community.

## Bully, Bullied, and Bystander

The three main characters portrayed in most picture books were the bully, bullied, and bystander. These characters were not portrayed with equal emphasis. The bullied was most emphasized, followed by the bully and then the bystander. One consequence of the overemphasis on the bullied and the underemphasis on the bully and bystander is that portrayals did not fully capture the inherent complexity of the act of bullying and the variety of people involved and affected by it.

This study found that most books portrayed a singular image of bullying - one bully and one bullied. Other books portrayed different image, but to a much lesser extent. Other images included one bully who bullied multiple children in the neighborhood and community; groups of bullies who bullied groups of students in school hallways and on school playgrounds; and one bully bullying others in a variety of settings where one or more bystanders were present. A singular image of bullying oversimplifies and distorts the act of bullying. Acts of bullying impact many different people in many ways. Thus, more complex, and less simple, portrayals of bullying are needed.

## **Bullies**

In many ways bullies defy gender. Both males and females bully, both are bullied, and both are negatively affective from it. There are some important distinctions.

On the one hand, males bully more than females at all educational levels (Smith, Cousins, & Steward, 2005). Males are more likely to be bullies and to be physically bullied more than females (Gruber & Fineran, 2007). This study found that the portrayal of bullies is consistent with these research findings. Oppliger and Davis (2016) found that the portrayal of bullies in picture books were twice as likely to be male. This study also found that the portrayal of bullies was mostly male, and specifically Caucasian male. Approximately 60% of picture books portrayed bullies primarily as one male character with a notorious reputation for bullying.

In addition, males bully more overtly and more physically, especially through physical, emotional, and psychological intimidation (Craig, 2017). This study found portrayals of bullies to be consistent with previous research and described bullies through physical, personal, and social characteristics. Descriptive words and phrases were used to identify those characteristics. In the Preschool through Grade 3 grade band, words that accurately describe physical characteristics of the bully include *big*, *strong*, and *scary*, followed by words that describe personal characteristics and including *mean*, *bossy*, and *ornery*. Similarly, in the Middle Grades 4 - 8 grade band, words that accurately describe physical characteristics include *big*, *large*, *tall*, *huge*, and *fat*, followed by other descriptive words that describe personal characteristics and include *being rude* and *acting uptight*.

Males bully to exert power, gain control, and achieve status, and do so through behaviors such as hitting, kicking, pushing, stealing, and intimidating (Bandsuch, 2017). This study found portrayals of bullies to be consistent with previous research that described reasons why male bullies participated in bullying others. Descriptive words and phrases were used to identify those reasons. Bullies wanted and needed to *feel powerful*. They always acted *mean* and *tough* and *bragged* incessantly. Bullies wanted something that *already belonged to someone else*. Typically, this was a physical object, e.g., somebody else's lunch, toy, soccer ball. Still another reason was that bullies were unwilling or unable to *tolerate difference* of any kind, a portrayal that was particularly evident in the Middle Grades 4-8

grade band. Portrayals of bullies provided no evidence to support the notion that bullies bullied others because they also had been bullied.

Male bullies bullied victims who were *different* from themselves, viewing them as particularly *vulnerable* to bullying. Once selected, they bullied victims by trying to exert power over them in different ways. They (and females) *intentionally excluded* others from activities in the classroom, at school, and in the neighborhood. Bullies were portrayed across both grade bands as persons who bullied from a sense of *possessiveness*, *resentfulness*, *jealousy*, and *insecurity*. Ultimately, bullies did not want any other person to gain a *status* equal to or, even worse, greater than what bullies perceived to be their own.

Lastly, bullying involves a gender paradox (Williams, 2015). The paradox is that, while males and females are both bullies, they bully differently, and bullying affects them differently (Craig, 2017). Unlike male bullying, which is mostly overt and physical, female bullying is mostly subtle and relational. Female bullying is characterized as social aggression against other females and typically involves rejection, ostracism, deliberate exclusion, public criticism, and covert verbal attacks like gossip, rumors, insults, and whispering (NEA, 2011). Moreover, females are affected severely by relational bullying. It is as damaging as physical, and the effects are long-lasting (Bandsuch, 2017).

Findings from this study was consistent with previous research findings. Male bullying was portrayed as overt and physical, while female bullying was subtle and relational. This study did not find portrayals that indicated any long-lasting effects from the bullying. For example, neither male or female portrayals of bullying indicated any deleterious effects beyond the immediate situation, e.g. depression, withdrawal, isolation, etc.

## **Bullied**

Like findings on the identity of the bully, portrayals of the bullied were mostly male, and specifically Caucasian male. Approximately 60% of picture books portrayed the bullied as one male character who was often a friend or an acquaintance of the bully. Very few books portrayed the bullied as a group of people being bullied, e.g., a classroom of students.

Several reasons were found for why the bullied was bullied. These reasons were based on several social and economic factors, as well as personality traits of the bullied. Descriptive phrases were used to describe reasons for why the bullied was bullied and include *has big feet*, *is small and week*, *has freckles and red cheeks*, *is awkward and clumsy*, *wears glasses*, and *has weird hair*. Phrases also were used to describe reasons based on social and economic factors, particularly the living conditions of the bullied, and include the bullied *lives in a junkyard*, *wears old or dirty clothing*, *owns and wears a shabby coat*, *lives in poverty*, *wears the same clothes to school*, and *is unhealthy and sickly*. Still other phrases describe reasons based on personality traits and include the bullied was *a wimp*, *a sissy*, *a crybaby*, and males were bullied because they *did not conform to gender norms*. The bullied were also bullied because they were new, *new to a school*, *to a classroom*, *to a neighborhood*, and *to a community*.

Lastly, Flanagan et al. (2013), found many coping strategies used by the bullied to combat bullying. Phrases were used to accurately describe these strategies and included *ignore the bully*, *deliberately miss school*, *hide from the bully*, *confront the bully verbally or physically*, *befriend the bully*, *trick the bully*, *gang-up on the bully with friends*, *change physical appearance*, *isolate themselves*, *acquiesce or yield to the bully*, *don't react*, *make changes to self to satisfy the bully*, *develop more self-confidence*, *join the bully*, and *become a bully*.

In this study, “Tell an Adult” was also a common coping strategy used by the bullied. Many anti-bullying and suicide awareness programs encourage students to turn to teachers if they are bullied themselves or know of someone who is being bullied (Pytash, 2013). This sounds easy but is not. It is not easy for the bullied to find the courage that it certainly takes to step forward and tell an adult. How does the bullied decide what adult to tell? Why one adult, but not another? Under what circumstances does the bullied report bullying behavior to an adult? What are the consequences if the bullied tells an adult, but the bully continues to bully?

## Bystander

Previous studies focused very little, if at all, on portrayals of bystander and bystander responses to bullying. This study investigated both and found that most picture books portrayed at least one bystander in bullying situations, and most included groups of bystanders. These groups included school classmates, family members, teacher and school staff, community members, next-door neighbors, and general friends. While more bystanders were identified and portrayed in the PK-3 grade band, portrayals of bystanders were similar across both grade bands. Bystanders were portrayed mostly as classmates, followed by teachers, family members, community members, and friends.

This study also found a variety of ways bystanders responded to bullying situations and uses phrases that accurately describe these responses. Some responses were positive and helpful, while others were negative and unhelpful. Positive and helpful phrases include bystanders *expressed support the bullied*, *stood-up for the bullied* (told the bully to stop, asked an nearby adult for help), *gave advice* (recommended the bullied stood-up to the bully, go tell parents or another adult), *showed kindness towards the bullied* (acting helpful or concerned), *offered to fight the bully*, and *walked home with the bullied for protection*, and *befriended the bully* as a strategy to end bullying.

Negative and unhelpful phrases include bystanders *acted shocked by the bully*, *acted frightened and scared of the bully*, *expressed fear of the bully*, *ignored the bully*, *tolerated the bully and the bullying*, *did nothing* (did not know how to handle the situation), *laughed and joined in with the bully reacting emotionally*.

The portrayal of bystander responses to bullying was mostly positive. Bystander responses decreased, and at times stopped, the bully from continuing to bully. At other times, however, portrayal of bystander responses were negative. They portrayed bystanders as well intended, but mostly ineffective. Bystanders were portrayed as reacting emotionally, e.g., *starting to cry*, *becoming visually upset*, *showing concern but also being confused*, and *being immediately scared*

*and frozen* about what was happening and ways to stop it, hoping someone else would quickly intervene. Emotional responses were portrayed as ineffective, and the bullying continued.

On the one hand, bystanders were generally portrayed as responsive and helpful to the bullied. In most instances bystanders directly intervened in bullying situations, verbally confronted the bully, and thus stopped the bullying in progress. On the other hand, bystander interventions were portrayed as having no positive and long-lasting effects on bully behavior. Without question, bystander interventions helped to stop the bullying, but only temporarily. Once bystanders left the scene, the bully continued bullying.

### Implications

Findings from this study raise important implications for future research on picture books with bullying themes. One implication involves thinking more broadly about bullying. It is important to understand that bullying occurs at all grade levels, but peaks in the middle grades. What literature (picture books, chapter books, graphic novels, poetry, etc.) currently exists that portray bullying by adolescents? How can teachers use this literature with middle grades students to help them better understand and prevent bullying? What literature exists that portrays female bullying? This literature can be used by teachers to raise awareness with students that bullying is an act perpetrated by both males and females.

In addition, most bullies are males, but their victims are not always other boys, but girls. Males bullying females, and vice versa, is referred to as cross-gender bullying (Rodkin, 2008). This kind of bullying is frequent, but not widely understood because it goes largely unreported. What literature exists that portrays cross-gender bullying? What research has been conducted on cross-gender bullying?

Another implication involves thinking about bullying in more complex ways. Bullying is a complex act of aggression with deleterious, long-lasting effects. This study found portrayals of bullying that were more simplistic than complex. They did not portray the devastating effects of bullying that can haunt the bullied for a lifetime.

Still another implication is the need to conduct research studies on bullying as a curricular and social justice issue. Instances of bullying are increasing around the world and in the United States. Globally, Howard (2018) states that a recent report from the United Nations Children's Fund suggests that "approximately 50% of 13-to-15-year-old students worldwide, or 150 million students, have said they experience violence, such as fights or forms of bullying, from their peers in and around school" (p. 1). In the United States, Wilka (2018) states that in the 2016-2017 school year, survey responses from more than 180,000 students in grades 5-12 and, across 37 states indicated that just over one in four students reported they had been bullied in school. In 2017-2018 school year, survey responses from more than 160,000 students across 27 states indicated that 33% of students reported

being bullied in the 2017-18 school year, and middle grades students experienced bullying at higher rates than high school students – 40% compared to 27% (p. 1).

In response, international and national policies, state laws, and a plethora of programs have been developed to combat bullying. Schools and school districts have developed no-tolerance suspension policies for students who bully. For the most part these efforts have not been effective. One possible explanation for their ineffectiveness is that they represent add-ons to a curriculum. To be effective, bullying should not be an add-on, but rather a put-in to the curriculum.

Bullying should be included into the social studies curriculum for several reasons. One, it is social justice issue. Schools must be safe places for all students, regardless of age, religion, culture, gender, etc. Unfortunately, schools continue to be unsafe places for the bullied. Moreover, social studies curricula are already replete with social justice issues, including civil rights (racism and sexism), immigration laws, freedom of and from religion, the death penalty, access to health care, mental illness, etc. Bullying is also an important social justice issue.

Much research can be conducted on bullying as a curricular issue in social studies. How can bullying be taught in the social studies curriculum throughout grades, K-12? What curricular resources and instructional strategies can be used by social studies teachers to effectively teach students about bullying? What bullying content should be taught?

In addition, much research can be conducted on bullying as a co-curricular or interdisciplinary issue. In English/Language Arts (ELA), what literature exists that teachers can use to engage students in reading, writing, and discussing about bullying? What literacy skills can be taught from literature that deals with bullying themes? How can social studies and ELA teachers collaborate to develop and teach integrated social units on the topic of bullying? These questions, and many others like them, offer much power and potential for conducting research on bullying.

### Limitations

The data set of picture books with bullying themes represents a major limitation of this study. The selection of picture books was based solely on a sample of convenience; that is, books personally owned by the principal investigators. Many other picture books have been commercially published with bullying themes, but they were not used in this study.

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