

**Universal Design for Learning as a Bridge to Inclusion:  
A Qualitative Report of Student Voices**

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Acknowledgements: Our sincere gratitude goes to the students, teachers, and administrators who took part in this research as well as to our universities for funding this project.

To cite this article: Katz, J. & Sokal, L. (2016). Universal design for learning as a bridge to inclusion: A qualitative report of student voices. *International Journal of Whole Schooling*, 12(2), 36-63.

**Abstract**

Innovations in pedagogy are, at their core, aimed at improving the educational experiences and outcomes of learners. Being as many countries are embracing a philosophy of inclusive education, designers of educational reform must be mindful of the effects of any proposed innovations on the experiences and outcomes of a broad range of diverse learners including ethnically and linguistically diverse students, students from indigenous backgrounds, and students with and without disabilities. The current project sought to contribute to the literature on the learner effects of a new pedagogy called the Three-Block Model of Universal of Design for Learning. This model is aimed at meeting the needs of diverse learners in a common setting. Specifically, we examine the effects of the model on diverse students' conceptions of learning, processes of learning, interdependence in learning, academic self-concept, and school engagement and report through the student voices on the benefits and challenges of this pedagogy.

Innovations in pedagogy are, at their core, aimed at improving the educational experiences and outcomes of learners. Being as many countries are embracing a philosophy of inclusive education (Forlin, 2012), designers of educational reform must be mindful of the effects of any proposed innovations on the experiences and outcomes of a broad range of diverse learners. The current project sought to contribute to the literature on the learner effects of a new pedagogy called the Three-Block Model (TBM) of Universal of Design for Learning (UDL)(Katz, 2012). This model is aimed at meeting the needs of diverse learners in common, inclusive settings through pedagogy that addresses the social-emotional and belonging needs of students alongside offering them authentic, multi-level instruction, and therefore endeavors to uphold the principles of whole schooling. Specifically, we examine the effects of the TBM on conceptions of learning, processes of learning, interdependence in learning, academic self-concept, and school engagement in ethnically and linguistically diverse students, indigenous students, and students with and without disabilities.

### Literature Review

Learning is affected by a variety of factors including those organic to the learner, the characteristics of the learning environment, and the interaction between them. Conceptions, processes, and interdependence of learning, class climate and social and emotional well-being, as well as academic self-concept and school engagement all affect learners' experiences at school.

### Conceptions of Learning

*Conceptions of learning* refer to learners' understandings and beliefs about learning (Lai & Chan, 2005, p. 3). Research has shown that children's engagement in learning as well as their academic achievement is affected by their conceptions of learning (Dweck, 1999; Dweck & Leggitt, 1988; Eccles, Wigfield, & Schiefele, 1998; Li, 2004). Taylor, Esbensen, and Bennett (1994) conducted research on preschool children that showed that these young children had very under-developed ideas about learning, in terms of demonstrating little awareness of their changes in knowledge over time. That is, when they learned new information, the children told the researchers that they had always known it. Sobel, Li and Carriveau (2007) also investigated children's development in terms of their conceptions of learning. They found, like Taylor, Esbensen, and Bennett, that younger children aged four did not understand learning as a process. However, they also found that older children aged six were more likely to conceptualize learning as a process. Furthermore, the older children seemed to understand the importance of attention and intention in the learning process. Hadar (2009) studied teen-aged children's conceptions of learning. Citing research by Martin & Ramsden (1987), Saljo (1979), Van Rossum & Schenk (1984), Hadar showed that students' conceptions of learning are not static, and may fall into five categories:

- (1) as an increase in knowledge, and as an activity by which the learner adds new knowledge to previous knowledge;
- (2) as memorizing or reproducing, and as an activity by which pieces of knowledge and units of

information are transferred from an external source; (3) as acquisition of facts or procedures that can be utilized in everyday life (i.e., application). In this view knowledge is useful only if the learner can use it outside the narrow educational context; (4) as an abstraction of meaning, that is, no longer as a mere reproductive activity but rather as a constructive, active task in which the learner selects ideas and principles that are not only to be learned but to be understood; and (5) as an interpretive process aimed at comprehending reality differently. This perception emphasizes that seeing things from different perspectives helps you interpret reality. (p. 2)

Categories one to three are viewed as superficial learning while categories four and five are viewed as deeper conceptions of learning (Hadar, 2009). Sadly, the 15-18 years olds who participated in Hadar's study responded to the question, "What is learning?" by describing school learning in superficial ways and ideal learning as a separate category that represented deeper understanding. While their concepts of ideal learning involved high interest, engagement, and knowledge acquisition, their concepts of school learning involved superficial compliance with teacher's expectations.

### **Processes of Learning**

Dunn and Dunn (1979) argued that it stands to reason that children who prefer alternative learning styles to those provided by teachers who use limited pedagogical approaches, such as lecture and discussion, will do less well than they would in environments with greater differentiation. Landrum and McDuffie (2010) concurred, stating, "If instruction is to be effective, it must be matched to individual needs" (p. 13). Differentiated instruction, according to Tomlinson (2001), involves providing varying opportunities to children in their experiences of the content, process, and products of learning. In this way, learners are provided greater access to the goals of the prescribed curriculum through these varying pathways. Research has shown that by middle school, children are capable of recognizing whether their teachers are effective or not, and can suggest environmental and instructional modifications that would make learning more effective for them as individuals (Sagan, 2010). Given the diversity of inclusive classrooms, it stands to reason that authentic, multi-level instruction, a principle of whole schooling, offers more accessible learning to all.

### **Interdependence in Learning**

One of the ways that children may express their individuality in learning is through a partiality to individual or to group learning processes. Dunn and Dunn (1992) differentiated between students who liked to learn alone (analytic learners) and those who preferred to work in groups (global learners). Using this dichotomy, Pitts (2009) showed that students who had access to information through pedagogies that accommodated these preferences had better achievement. Park (2000) found that Asian immigrants were more likely to prefer group work than were Anglos, and were able to achieve at higher levels when their preferences for analytic or global environments were honored. Awareness of

the existence of these preferences can enhance teacher decision-making in diverse classrooms.

In exploring the benefits of the group learning processes, research has demonstrated that school-aged children benefited more from group learning than from individualistic learning (Bertucci, Conte, Johnson, & Johnson, 2010) or competitive learning (Johnson & Johnson, 2005). Furthermore, Bertucci et al. found that children experienced social gains from working in groups that are unavailable through individualistic pedagogies, supporting the whole schooling principle of building community within our classrooms.

### **Class Climate and Social and Emotional Well-Being**

Social and emotional learning, and the affective environments in which students learn, impact student engagement and achievement (Greenberg, Bierman, Coie, Dodge, Lochman, & McMahon, 2010). Students' sense of belonging, self-concept, and relationship with their teachers all impact learning, in fact, Caprara et al. (2000) found that students' academic achievement in grade 8 could be better predicted from knowing their grade 3 prosocial behavior scores than from knowing their grade 3 academic achievement. Clearly, then, social and emotional skills have a significant influence on academic development. Beyond that, flourishing mental health is a goal in and of itself. Around the world, the rates of childhood depression, adolescent suicide, and other mental health concerns are a growing focus of school programming (Rickwood, Cavanagh, Curtis, & Sakrouge, 2004), and schools are seeking pedagogical innovations that will address these concerns in an integrated way with academic instruction (as opposed to "adding another thing to the plate" of teachers).

### **Academic Self-concept**

"Academic self-concept, broadly defined, can be thought of as a student's self-perception of academic ability formed through individual experiences and interactions with the environment" (Rosen, Glennie, Dalton, Lennon, & Bozick, 2010, p. 118). Cokley and Chapman (2008) showed that positive academic self-concept is related to higher academic achievement, a finding supported by copious research (Awad 2007; Cokley 2000a; Cokley 2002a, b; Lent, Brown & Gore, 1997; Witherspoon, Speight, & Thomas, 1997). Furthermore, Cokley and Chapman found that academic self-concept was affected by ethnic identity, which is a variable of interest in our increasingly diverse classrooms. Low academic self-concept has also been associated with more aggressive behavior in middle school students (Taylor, Davis-Kean, & Malanchuk, 2007). Likewise, Heyman (1990) showed that as students' perceptions of disabilities increased, their academic self-esteem decreased. Moreover, Mbekou, Corbiere, Fraccaroli, Mbekoun, & Perron (2006) hypothesize that academic interest and academic self-concept together were important determinants of students' academic achievement.

## **School Engagement**

School engagement has been a focus in Canada since 2009, when Willms and his colleagues published the landmark study called, “What did you do at school today?” (Willms, Friesen, & Milton, 2009). Willms et al. found that engagement could be classified in three ways: social engagement, academic engagement, and intellectual engagement. Social engagement refers to students perceiving belonging as a part of the school’s activities and community. Academic engagement refers to the students carrying out the role of ‘the student’ by completing tasks such as attending, handing in work, and participating in the learning process. Intellectual engagement refers to deep immersion in learning where the levels of interest and challenge maximize learning for a particular student. Sadly, Willms and his team found out that Canadian children were disengaged from their schooling and that the level of engagement and attendance decreased as children progressed toward graduation. Moreover, minority students, Indigenous students, poor students, and students with disabilities are even more likely to be disengaged than other students (Audas & Willms, 2001; Caledon Institute of Social Policy, 2006; Community Health Systems Resource Group, 2005; Richards & Vining, 2004). In their conclusions, Willms, Friesen, & Milton suggested that inclusive educational practices were the recommended solution to addressing student disengagement.

## **What is Universal Design for Learning?**

Universal design for learning is an inclusive pedagogy that was originally developed at Harvard University by David Rose and his team (Rose & Meyer, 2002; Rose, Meyer, & Hitchcock, 2005). This approach is based on original ideas of universal access and function proposed by architects in designing new buildings and spaces, where the goal of UDL was to break down barriers and build supports in spaces used by people with a range of physical abilities and needs. When applied to learning, UDL is designed to promote physical, social, and academic spaces that support meaningful access and function to a range of learners. Examples of UDL pedagogy include allowing multiple ways for students to access, process, and represent their learning. Thus, while some students will access content through group discussion, others may choose teacher-led lessons, and still others may conduct research using various media. In terms of representation of learning, some students may write a report, some may create a multi-media presentation, and some may perform a skit. It is important to note that in all cases, the criteria for assessment of learning goals remain consistent. In effect, the learning endpoint goals stay the same, and it is the ways that student get to that endpoint of learning that is made more diverse. In this way, each student is challenged to learn to his or her own capacity, and is challenged through both multi-level authentic instruction and assessment.

## **What Does the Research Show About the Effects of UDL?**

Empirical studies documenting the impact of UDL have been limited, but promising. UDL has been shown to support access, participation, and progress for all

learners (Jimenez, Graf, & Rose, 2007; King-Sears, 2009; Kortering, McLannon, & Braziel, 2008; Meo, 2012; Rose & Meyer, 2002). Research exploring literacy applications, (Marino, 2009; Meo, 2012; Coyne, Pisha, Dalton, Zeph & Smith, 2012), and universally designed mathematics instruction has demonstrated positive outcomes both attitudinally and in terms of achievement (Dalton, Pisha, Eagleton, Coyne, & Deysler, 2002). Students with significant disabilities have been shown to increase their number of interactions with peers without disabilities, be more engaged in their learning, and develop more age-appropriate social skills in classrooms implementing UDL (Dymond et al., 2006). Students with learning disabilities and second language learners have also been shown to benefit (King-Sears, 2009; Lopes-Murphy, 2012).

### **What Are the Limitations of the Research?**

**Lack of research on UDL's effects on learners without disabilities.** While originally proposed to address the needs of diverse learners—which include a wide range of learners—the vast majority of research on UDL has focused on the effects of this pedagogy on learners with disabilities. It is ironic that the UDL approach strives to blur the distinctions between learners with and without disabilities by providing common strategies that address all learners' needs, yet students with disabilities continue to be the focus of research on the effects of UDL. In conducting the literature review for the current project using search terms such as “universal design for learning” and “student”, we found that the overwhelming majority of results focused on learners with disabilities, highlighting that UDL research needed to expand its focus to include the effects on a broader range of learners if it were to be truly inclusive in scope. In an address to the UDL Implementation Research Network conference of 2016, David Rose himself called for greater outcome-based research related to all students, and particularly students with significant needs, as what research has been done has focused almost exclusively on students with learning disabilities.

**Focus on technology.** A second limitation of the research again has to do with focus. Given the burgeoning opportunities provided by evolving technology, a large number of studies have focused on how technology can be used to create universal access through online, blended, and computer-assisted learning. While this is certainly an area worthy of exploration, it moves the focus away from learning in general and toward learning through technology. Original inceptions of UDL by its creators, Rose and Meyer, demonstrated this technology focus (2002). Later inceptions of models under this same approach, including revisions to CAST's third principle, and the Three-Block Model (TBM) of UDL (Katz, 2012), expanded the focus to include social-emotional learning needs and strategies. However, a fundamental difference continues between the two models. The focus of the third principle in CAST's model, “Multiple Means of Engagement” is on the social-emotional factors that impact/improve academic outcomes, such as engagement. For instance, in checkpoint 9.2, teachers are encouraged to pay attention to students' emotional regulation in reference to their learning, such as becoming frustrated or discouraged by a task. While the Three-Block Model shares this vision, it also incorporates a focus beyond academic learning – in other words, on mental health and well-being beyond school and learning. In this way, the model encompasses a

larger field of CASEL's work on SEL ([www.casel.org](http://www.casel.org)), the work of Keyes (2002) on positive mental health, and Brokenleg's Circle of Courage (Brendtro, Brokenleg, & Van Bockern, 2014). This may be considered a strength or a weakness of the model, as it is more wholistic and requires teachers' professional implementation and skills in assessment, and is less specific in its checkpoints for assessment and accountability. This is, in part, likely a reflection of nuanced differences in the Canadian and American contexts.

### **So What is the Three-Block Model of Universal Design for Learning and its Outcomes?**

The TBM is a multi-pronged approach to meeting the needs of diverse learners (Katz, 2012; 2013a; 2013b; Katz & Porath, 2011). Developed over years of classroom practice, it aims to bring together three "blocks" to support student learning. The first block addresses students' social-emotional well-being. It involves a collection of strategies, including the *Respecting Diversity* program (Katz & Porath, 2011) aimed at developing students who recognize their own strengths and challenges as learners and see other students with alternative strengths as interdependent resources for learning, and develop respect for diverse others. Katz offered a series of nine lesson plans in her respecting diversity program in order to facilitate these block one goals, and these lessons expand students' understanding of being "smart" beyond the traditionally considered academic skills such as verbal-linguistic and logical-mathematical thinking. Strategies employed in block one also include *Spirit Buddies*, a daily small group meeting aimed at enhancing students' sense of belonging and building social connections, and *Democratic Classrooms*, a class meeting structure that allows children to participate in a process for creating and maintaining a healthy social environment and building prosocial problem solving skills. This block supports whole schooling principles such as democracy, inclusion of all, and building community.

Block two addresses the diversity of learning needs within the classroom through a focus on pedagogy. Built on approaches such as differentiated instruction (Tomlinson, 2001), understanding by design (Wiggins & McTighe, 2006), and integrated curriculum, this second block provides students with diverse needs and interests with opportunities to interact with and learn from diverse resources, including one another. The focus is on providing diversity in opportunity in terms of ways to access, process, and representation of learning, honoring the original basis of UDL proposed by Rose and his team (2002; 2005). The pedagogy used in this block culminates in a series of centres that students access in diverse groups. This block supports the whole schooling principles of support, and authentic, multi-level instruction and assessment.

The third block addresses the systems and structures that need to be in place in order for UDL to work. This block tends to involve components that fall within the purview of administrative decision-making and includes such aspects as funding and supporting co-teaching opportunities, designing schools with diverse learners in mind, and building accessible classrooms rather than segregated ones. Given the interdependence required by teachers who share the same students, teach them different



courses, and wish to use integrated planning, block three draws attention to seemingly minor administrative strategic planning, such as shared planning time for these teachers. This level of detail is important to making UDL work in a system that, for many years, has funded and programmed for students with and without disabilities as separate groups. This block address the whole schooling principles of partnerships and space for all.

In terms of the research outcomes of this specific model of UDL, the newness of the model prohibits examination of a large database. However, recent findings suggest the TBM is meeting its goals. The respecting diversity program, a component of block one, significantly and positively affects students' self-concept, social engagement, and sense of belonging (Katz & Porath, 2011). Students noted decreases in bullying, and improved class climate and inclusivity, and when combined with programming in the other blocks, academic engagement is significantly increased (Katz, 2013). Katz & Sokal (in review) found that the TBM instructional strategies in block 2 promoted student academic achievement for all students they studied in grades kindergarten to 12 when compared to control groups using traditional pedagogies. These outcomes were equally strong for students with and without disabilities, students who were culturally and linguistically diverse, and students of Aboriginal descent.

Other recent research (Sokal & Katz, 2015) found that diverse middle school students demonstrated significantly higher intellectual engagement, active learning, and peer interaction in classes incorporating the TBM than in control classes that did not. The positive effects of the TBM extended to teachers as well: Katz (2014) found that teachers incorporating this pedagogy experienced enhanced self-efficacy and job satisfaction, and lower stress levels. Likewise, Glass (2013) found that the TBM was effective in addressing the needs of boys who were disengaged in schooling. Although these findings are encouraging, some of them focused only on a sample of middle years students (Sokal & Katz, 2015) or examined their responses to block one of the model alone (Katz & Porath, 2011; Katz, Porath, Bendu & Epp, 2012). Furthermore, previous studies of all three blocks implemented with kindergarten to twelfth grade children have used quantitative methods (Katz & Sokal, manuscript in preparation; Sokal & Katz, 2015). Our understanding would be greatly enhanced by research using qualitative methods that elaborates kindergarten to twelfth grade students' own insights about the effects of the TBM on their learning: Such was the goal of our current project.

### **Research Question**

Given the limitations of the current research literature on the processes and outcomes of the TBM of UDL, we sought to use qualitative methods to answer the following research question: What are the effects of the TBM on diverse students' conceptions of learning, processes of learning, interdependence in learning, learner self-concept, and school engagement?

## Methods

### Population

The study was part of a larger study that included over 650 children, 50 teachers, and 15 administrators from three school divisions in the province of Manitoba, a province in central Canada. One of the school divisions was in a rural area, and two were in an urban area. Participants of interviews were selected from all kindergarten to grade 12 classrooms that participated in the project. Random selection was used to select two students from each classroom. This process resulted in 101 students from 51 classrooms being interviewed at both the beginning and the endpoint to the TBM intervention (one child dropped out). These students included: 19 students who were Aboriginal (First Nations, Metis, or Inuit) and 82 students who were not; 11 students with disabilities, and 90 students without disabilities; 26 students from rural schools, and 75 from urban schools. These children attended 22 different schools and were taught by 51 different teachers. Of these students, 52 were male, and 49 were female. Thirty-seven students attended grades one to four classrooms, thirty-three attended grade five to eight classrooms, and twenty-five attended grade nine to twelve classrooms. Six students' data on grade attended were missing. Of the 101 children, one spoke Ojibway (Aboriginal language) as his first language, five spoke Tagalog (Filipino language), and three spoke different languages other than English as their first language. However, forty students did not indicate their first language, thus it is difficult to determine the exact proportion. Manitoba schools report an approximate rate of 20% of students learning English as an additional language, and it is likely this is true for the participants of this study as well.

In Manitoba, students with high incidence disabilities are block funded. Thus, any ministry-identified students with “special needs funding” were students with significant disabilities, such as “severe to profound intellectual or multiple disabilities”, “severe autism spectrum disorders”, “severe to profound emotional and behavioral disorders” and severe sensory disabilities such as deafness and/or blindness (Manitoba Education & Training, 2016). All of the schools we worked in were fully inclusive, meaning that they did not have special programs or classes for students with disabilities. For the most part, students were supported in their classrooms, although some special pull-out programming such as Reading Recovery for twenty minutes a day may occur. Of the 101 students interviewed, 11 students had ministry designations as a student with special needs. This reflects a 10% incidence rate which, given statistics in Canada for students with significant mental health challenges (i.e. emotional and behavioral disorders) combined with low incidence exceptionalities, indicates a proportional representation.

### Procedures

As part of the larger design, teachers in the 51 treatment classrooms attended five days of professional learning about the TBM. They were instructed on the tenets and procedures of the three blocks and then took part in smaller subject-matched or grade-level-matched groups in order to support one another in planning integrated units. Once

the teachers began to implement the units, they were given resource support from the TBM program trainer as well as being provided with a Professional Learning Community comprised of other teachers implementing the TBM units. In this way, teachers were provided with support while implementing this new pedagogy. The teachers in the study began by implementing block one strategies in order to address the social-emotional learners in their classroom, construct a democratic classroom, and help children identify their own and their peers' strengths and weaknesses as learners. The teachers then incorporated block two strategies that involved implementing the integrated, differentiated units that ended in a three-week stretch of learning centres. The students were placed into heterogenous groups that fostered interdependence, and then they circulated through the learning centres that fostered inquiry learning, critical thinking, and problem-solving about the unit topics.

A trained research assistant interviewed students before and after the TBM was implemented. After obtaining divisional and parental consent, as well as university and divisional ethics approval, the students were taken to a private location in their school. They were informed of our research processes and requested to assent to participation. No students declined. Students were interviewed for 10- 20 minutes. Older students tended to give more elaborate answers, which resulted in longer interview durations. Students' words were recorded with an Echo Smartpen, a pen that makes a video and audio recording of the notes taken during the interview. At both time points, students were prompted to answer questions based on a script. Research assistants were instructed to prompt and rephrase if the children did not seem to understand the question, which sometimes happened with the youngest children. Once the interviews were completed, the "pencasts" were transcribed by another researcher. All research assistants were trained in the expectations of confidentiality and research ethics outlined in the Tri-Council Policy Statement on Ethical Conduct for Research involving Humans (Research Ethics Panel, 2014).

Once the data were transcribed, the two researchers worked independently to analyze the transcripts using the constant comparative method (Strauss & Corbin, 1990). Open coding (p. 61) and then axial coding (Strauss & Corbin, 1990, p. 96) was used in order to generate themes. After generating themes separately, the researchers conducted joint re-analysis using selective coding (Strauss & Corbin, 1990, p. 116) and discussion to generate the final themes.

### **Findings and Discussion**

Analyses of the transcripts from the pre-intervention and post-intervention interviews indicated that students demonstrated changes in some of the areas under consideration: conceptions of learning, processes of learning, interdependence in learning, learner self-concept, and school engagement. Before exploring the students' perceptions of these dimensions prior to and after the intervention, we would like to comment on children's awareness and perceptions of the changes that occurred in their classrooms when the TBM of UDL was implemented. It should be noted that some children did not appear to be aware of the changes. One student said, "Well, at the

beginning of the unit we just put the strengths into the playdough [part of the respecting diversity program], and that was pretty much it.” Some children mentioned a new seating plan, a new classmate, or other changes unrelated to UDL. These comments were usually made by the youngest children-- those in kindergarten and first grade. However, the vast majority of the students noted changes that were specific to the new TBM pedagogy and provided evaluative comments. Students noted changes in both the social-emotional climate, and the instructional design. Many students commented on block one processes for building classroom communities: “It seems like our classroom has gotten closer because of the meetings and stuff, and everyone is not afraid to talk, and just like, everyone is friends,” and “We have been doing classroom meetings, but I would suggest doing it more often than regularly.” The respecting diversity strategies were also mentioned: “Sometimes we do ‘people smart’ and sometimes we do ‘self smarts’. We help each other.” One student did not specify changes he observed, but commented, “The teachers are teaching us better.”

Of students who commented on the changes they noticed, most discussed changes related to block two learning centres: “We started doing centres and that rubric thing. It’s easier. Like, if you’re not sure, you can ask someone in your group,” and “I noticed for the centres that we have been learning more than what the teachers have been teaching us...that we learn better individually than by teachers telling us what to do.” Other comments were, “Yah, I like to work in centres, because its kinda being like instead of staying in your desk doing the same worksheets over and over again, you’re, you’re out, you’re communicating with other people seeing their ideas, putting yours in, to see, cause it might turn, turn into a better product then just yours, you on your own” Another student said, “Right now in Science, we’re kinda doing certain centres based on a topic. There’s groups that are kinda mixed with people with different strengths.”

We turn now to the students’ comments as related to the dimensions of learning that we thought would be influenced by the implementation of the TBM of UDL pedagogy: conceptions of learning, processes of learning, interdependence in learning, academic self-concept, and school engagement.

### **Theme 1: Conceptions of Learning**

Prior to the intervention, the students’ responses to the question, “What is learning?” fell into three main categories. These included learning as a process, learning as teacher dependent, and learning as a means to success in later life.

The students who believed that learning is an additive process comprised the majority in the interviewed children, and their comments corresponded with Hadar’s (2009) first classification, a less developed level of conceptualization. Examples of the student comments included, “It means trying stuff over and over again until you get it right” and “Getting to know something you did not know.” Both these statements exemplify the understanding of learning as additive knowledge acquisition. At this level, students did not appear to be engaged. Rote memorization of facts was seen as “boring”, as noted by comments such as, “She tells us what to do and we do it, and when we’re done, we give the sheet to her” and “Study. Answers. That’s it.”

Hadar's second classification involves an understanding of learning as knowledge passed along from an external source. About 20% of the interviewees held this view, usually younger children. These children made statements such as, "I learn from my teacher", "I learn from teachers because they are older and they know better than us." Note the many references to the teacher as the knowledge supplier. Hadar's third classification addresses the utility of learning, and children who hold this view see learning as a means to an end. This viewpoint was the second most popular viewpoint within our sample, with most children making reference to life after graduation. Example statements included, "When you get older you can get into university, then get a job, then get a better life", "Kind of like knowledge for later in life—just in case you need it. Like how to be smart in life and have good choices", "Getting a good education and basically getting a good job," It should be noted that Hadar (2009) classified these three categories of responses as superficial. Only one student approached learning at a higher level, saying "Learning is development." As the student did not elaborate in this statement, it is difficult to classify the statement as category four or five. It should also be noted that some of the younger children did not understand the question, even when prompted.

After the TBM intervention, there were changes to the students' perceptions of learning. Many more students discussed learning as a means to better opportunities later in life, making statements such as, "It can help you be successful. You know, if you do well you can get a great job easier", "Learning is the first stage to your future," and "Learning is mandatory. Some people think it's something your parents are forcing you to do, but really it's to help you later on. You want to get a good job." At this later time point, however, only two children still made reference to learning from outside sources, Hadar's (2009) category two: one of these students made reference to the teacher and one made reference to "others" in general, suggesting the peer teaching component of UDL was salient to her. The decrease in comments about teachers after the intervention suggests that teachers have become less of the focal point in students' learning and that both peers and internal processes feature more saliently when children think about learning.

Although many students continued to make comments about learning as an additive process, Hadar's (2009) level one, their comments included more *agency* than the previous statements related to learning as a process, linking them to Hadar's category four. Examples of this included, "*Trying* new things you maybe haven't known or tried before" and "*Figuring out* how to do things. *Gaining new skills*, you know." After the TBM intervention, some students fully exemplified Hadar's category five, when answering the question "What is learning?" These students commented on extending their definitions of learning beyond school subjects and into other facets of life (level 5): "Do your own stuff to get our mind healthy," "Yah, it's kind of just you learn something new every day, and it might not always be about school, but you learn something new every day and school is just another way to learn something," and "We develop skill set that can be used in the future. And not just knowledge that sort of goes over your head but something that can just influence who you are as a person and how you react to world around you."

Table 1

*Themes related to conceptions of learning*

Theme	Representative quotes	% pre	% post
Learning as a rote, additive process	“If someone is teaching you things you’ll get it. I think that’s what learning means”	45	17
Learning as teacher dependent	“It means that a teacher is teaching you how to do that, or not”	23	2
Learning as a process – with agency	“Do your own stuff, To get smart. To get your mind healthy”	10	48
Learning as a means to success in later life	“Learning means to me that, well, you can’t really get a job without learning things	20	50
Learning as an interpretive process aimed at comprehending reality differently	“...not just knowledge that sort of goes over your head but something that can just influence who you are as a person and how you react to world around you”	2	10

**Theme 2: Processes of Learning**

Prior to the intervention, students were asked about how they learned best. At this initial time point, most students cited demonstration / lecture and rote skill and drill activities as their preferred learning mode. They made comments such as, “When somebody shows me and I actually have the time to do something. Like, um, um, it’s really hard to ... (long pause) I learn best when you have like an example to show me how then I do it” and “I practice it.” The second set of answers could be categorized as learning based on variables in the learning environment. Examples of comments were, “Sitting at the front of the class so that I don’t get distracted,” and “I like to work with background noise ‘cause it helps me to focus more.” The third category of responses related to students’ attention to internal processes. They made comments such as, “By paying attention”, “Focus”, and “I like to do stuff in my head.” Other students in this category were even more descriptive of these internal processes: “It helps to break down the questions or the point of the work,” and “Through solving things logically—thinking about the underlying issues.” The fourth category of responses involved students who learned best from teachers, including demonstrations. They said, “I like when the teacher

explains in very well so that I understand,” “The teacher helps. Like, she explains it all on the board.”

After the intervention, very few students mentioned learning from their teachers. When asked “How do you learn best?”, they responded overwhelmingly by saying they learned best in groups using active learning. Example statements included, “I like doing those math games and stuff, and action games—I like doing those,” “I like if we do it in a fun way instead of her just handing out a whole bunch of sheets and doing them,” and “I find it easier when teachers just don’t keep talking.” Other students make specific references to learning styles: “Usually visually, because I find it easier for me and maybe intrapersonal,” “I enjoy doing math activities and maybe, like I said, the SMARTS [multiple intelligences activities to differentiate instruction in the respecting diversity program].” Once again, relationships and climate influenced students perceptions, “We’ve definitely come a long way learning wise. We’ve learned a lot. Just as students, we’ve all opened up a bit more to each other. We all kinda know each other to an extent.”

Other students commented on the changes in the level of challenge that accompanied the implementation of the TBM. Comments included: “It’s not as easy as it used to be, the teachers are giving work that they know that would really make you think,” “I think we’re learning about harder things,” and “I think it’s a good way to learn because if it’s not challenging, you’re really not learning anything from it.” Given the strong research base (e.g. Willms et al., 2009) that shows the relationship between student engagement and appropriate level of challenge, these students’ comments are powerful endorsements for their learning processes under the TBM pedagogy.

Table 2

*Themes related to processes of learning*

Theme	Representative quotes	% pre	% post
1. Rote skill / drill and practice	“The teacher explains what’s going to happen, like step by step, so you know exactly what to do”	50	10
2. Teacher led	“The teacher helps. Like, she explains it all on the board”	50	8
3. Internal processes	“Pay attention”, “visualize”	12	25
4. Environmental variables	“Sitting at the front of the class so that I don’t get distracted”	10	0
5. Hands on Learning	“I think by like, actually doing something instead of people talking to me about it”	9	30
6. Personalized Learning	“Usually visually, because I find it easier for me and maybe intrapersonal”	3	24
7. Level of Challenge	“It’s not as easy as it used to be, the teachers are giving work that they know that would really make you think”	3	18

**Theme 3: Interdependence of Learning**

Students were asked if they preferred to work alone, in small groups, or as a class. Almost all preferred alone or in a small group prior to the intervention. Few preferred whole class. The largest group was comprised of students who preferred to work alone. These students cited distractions, and difficulties with collaboration as their primary reasons for this choice, for instance “I can concentrate easier and nothing will distract me and just go on my own pace,” “You don’t need to worry about anyone not getting their way,” and “I get more time to think about what I am doing.” Others found the group setting interfered with effective work: “When I’m in a group, I try hard but sometimes I get less work done.” Students who said they liked working in small groups of two or three students gave the following reasons: “You can ask somebody. And it’s easier that way. And more ideas also,” “If you work in a group, there’s people with different strengths and you can kinda get information from them.” “With a partner, just in case I don’t know the answer, they can help me,” and “We know we can help each other out” were comments that spoke to issues around interdependence.

After the intervention, most students continued to prefer group learning or learning alone when asked their preference after the intervention. However, the balance had shifted. That is, more students preferred group work, and no one referred to problems working together as a reason for not wanting it. Reasons for preferring group learning were similar to those given prior to the intervention in some cases: “When someone doesn’t know something, you can help them out” but students also noted that the increased sense of belonging and inclusivity made group work more appealing “It’s easier now because I am more comfortable asking questions and stuff.” It is noteworthy that the references to group learning were offered by students in response to the prompt. “How do you learn best?” in the post-intervention interviews but not in the pre-intervention interview. It seems that the salience of the group learning environment increased for students as they participated in the TBM pedagogy. Student who sometimes preferred to work alone continued to cite the quieter environment of individual work: “When I have no noise, I can focus better.”

Table 3

*Themes related to interdependence of learning*

Theme	Representative quotes	% pre	% post
1. Individual	“I can concentrate easier and nothing will distract me and just go on my own pace”	64	10
2. Small group	“It’s easier now because I am more comfortable asking questions and stuff”	27	82



**Theme 4: Academic Self-concept**

Most of the students perceived themselves as good learners prior to the intervention. Comments included, “I feel good. I feel I’m getting better at learning,” “I catch on pretty quick,” and “I feel confident in my learning.” These students discussed their understanding of learning as self-moderated and as a process: “I’m good at learning things. If I don’t get something right, I try again,” and “I learn pretty well. I just have to put in more effort when it comes to school.”

Other students differentiated some parts of learning where they perceived themselves in positive ways and some where they were less positive: “I’m not really great at math. I’m fine at social and English,” and “I feel I learn well as long as I’m not pushed too fast. As long as I’m able to work at my own pace, then I’ll be able to understand it better.” It is noteworthy how some students’ academic self-concept was related to adult validation of them as learners. When asked how they felt about themselves as learners, students responded with, “Good. When I was in parent teacher [meeting] with my Mom, my teacher said that I was really good with my writing.”

A small minority of three students did not feel positive about themselves as learners. They said, “Um, I don’t know,” “I’m not that great of a learner. I’m not that smart,” and “Not much—I’m better at having fun!”

After the intervention, most students continued to have positive academic self-concept, but seemed to be able to speak about it with greater introspection. Sample comments included, “I feel like I’m still improving as a learner,” “I feel good because I don’t feel like I really struggle. I feel pretty strong doing hands-on. Working by myself, working with other people, it’s all good.” One student said, “I feel really good about learning. I do what everyone else does. I’m not quick to judge what I’m learning. I get a feel for it, I start elaborating on it, and start doing different things using what we’re learning. I kinda don’t give up on it.” Collectively, the students’ comments about their learner self-concept demonstrated greater introspection and less reliance on external,

Table 4

*Themes related to academic self-concept*

Theme	Representative quotes	% pre	% post
1. General Self Concept – adult mediated	“my Mom and my teacher said that I was really good with my writing”	95	4
2. Personalized self-concept	“I’m not really great at math. I’m fine at social and English”	8	12
3. Self-concept mediated by introspection	“I’m not quick to judge what I’m learning. I get a feel for it, I start elaborating on it, and start doing different things using what we’re learning. I kinda don’t give up on it”	12	68

adult sources, such as parents or teachers, to validate or evaluate their learning. It should be noted that only one of the students had poor academic self-concept after the intervention, demonstrating change in two of the three students who did not feel positive before the intervention. The student who said “I don’t know” answered with the same phrase after the intervention.

### **Theme 5: Class Climate and Social and Emotional Well-Being**

In discussing whether they liked school, students in the initial interviews discussed the presence of friends in the school, but almost always in the context of play, extra-curricular activities, or recess. A few students also mentioned liking their teachers “I like seeing my friends and seeing my teacher”. No student mentioned the relationships with their friends or teachers in the context of learning. Although only a few students mentioned negative relationships “Some friends hate me. Some friends hate me”, after the intervention students noted decreases in such interactions “Well, I noticed that people are starting to get along better than the first part of the year.” Given the statistics on high levels of bullying and exclusion (Freeman, King, & Pickett, 2016), it is surprising it was not mentioned often in the pre-interviews, but students certainly noticed a change for the better afterwards. For instance, one student shared that “it seems like our classroom has gotten closer because of, like, the meetings, and stuff, and everyone is not afraid to talk, and just like, everyone is friends” and another noted “You can get closer to the...get closer to each other.” Students also noticed that there was a difference within their school between classes that were implementing UDL, and those that were not: “we kind of work more together rather than sitting apart and doing your own work. But not really in this school, just in this classroom.” Teacher-student relationships also were discussed “happy that my teacher is there for me when I need some help.”

Students also noted changes in their well-being, and resilience “I feel fairly positive, think, whatever I put in is what I get out.” While most students felt good about themselves as learners from the start, their initial responses focused solely on academic ability or success: “I really think I’m pretty productive with things.” After the intervention, students were somewhat more introspective: “I’m calm” and spoke of well-being beyond their ability as learners “Special inside - happy, good”.

Table 5

#### *Themes related to class climate and social and emotional well-being*

Theme	Representative quotes	% pre	% post
1. Class Climate	“Because everyone just welcomes you. You see somebody and they are like, “Hi! Have you had a good night?” And that’s very...it bring my spirits up to get more learning, and work done”	4	34
2. Well-Being	“Special inside - happy, good”	0	15

## Theme 6: Factors that Affect Liking School

When asked prior to the intervention whether or not they liked school, all but four students said that they did. Most students gave multiple reasons for liking school. Friends were mentioned most often and usually mentioned first. “Yes, I have a lot of friends, and school sports, and teachers are really nice,” “Yes, that’s where my friends are going to be,” and “Yes. Because of friends and I get to learn at school” were representative answers. Other students liked school because of the academic activities: “Yes, it’s the best thing to do when you are learning things that are new to you,” and “Yes, I enjoy almost all of my subjects.” Other students preferred the non-academic activities, saying, “Yes. It’s fun and we get to have choice time and recess.” Some students mentioned the teachers alone or in combination with other factors as reasons that they liked school. They said, “Yeah, because of my teachers and my friends,” and “I like having fun at school with my teacher.”

As mentioned, there were four students who did not like school before the intervention, and it should be noted that three of these students are the same students who did not feel they were good learners. These students voiced reasons for not liking school: “I don’t think so. It’s boring,” “Not fun,” and “No, I like being in the classroom. I just don’t like the outside environment. I think we are here to learn and not really here to socialize. I don’t really stick around [for lunches and spares]. I just go home.”

When interviewed after the intervention, the children who began the study liking school said that they continued to like school, but gave different reasons to those they offered prior to the intervention. In addition to liking seeing their friends, students gave specific comments about the level of challenge (see comments in Processes of Learning section) and improved quality of instruction as reasons for liking school: “I find that the teachers are teaching us better. Like in math, in the older version, all they [had was] one big long line at their desk,” “We’ve been having stations in Science and Social Studies. I like them, they are well thought out,” “It used to be that I could just learn from being taught, being told what to do, now I’m more, I found out that I learn a lot better when there’s actually some hands-on involvement,” and “It feels a lot better than how they used to do it. You can understand it more.” Furthermore, there were fewer comments about specific activities such as gym and recess, and more comments about learning through specific pedagogies, with centre-based, group learning mentioned more often as a reason to like school: “For the centers we’ve been learning more than the teachers have been teaching us, um, and that we learn better individually than teachers telling us what to do,” and “Stations are way better because you can communicate with your classmates instead of just listening to your teacher” are representative comments.

It is noteworthy that only four students of over 100 students interviewed prior to the intervention said they did not like school, or indicated they did not like all aspects of school. These students were of particular interest when they were interviewed after the intervention. We would like to look at each of these children in a little more detail, to determine the context of any potential changes that occurred.

Table 6

*Themes related to liking of school*

Theme	Representative quotes	% pre	% post
1. Friendships	“Yes, that’s where my friends are going to be”	50	65
2. General learning	“I get to learn at school”	40	70
3. Negative self-concept/ disengagement	“I don’t think so. It’s boring”	12	3
4. Instructional design / Differentiation	“We can experience different kinds of learning, and not just sitting there and listening.”	0	74
5. Instructional quality	“teachers don’t keep on talking like going over the instructions”	8	20
6. Challenge	“It’s not as easy as it used to be, the teachers are giving work that they know that would really make you think”	3	18
7. Autonomy	“We learn better individually than teachers telling us what to do”	0	18

**SGAJ (no change).** The first case was Sara. Sara is an urban high school student with diagnosed disabilities. She participated in the UDL intervention as part of her Math class. Prior to the intervention, she said that she learns best from friends. She preferred Science to Math class. She said she did not like school because it was “boring.” After the intervention, Sara maintained that she still did not like school because it was “not fun.” It should be noted that Sara’s answers at the interview were minimal, although her dislike of school was clearly articulated.

**BHKP (positive change).** The second case was Brynn. Brynn is an urban grade 11 student whose History teacher implemented UDL. Brynn provided reflective answers at both interviews. She stated that she “learned by solving things logically and looking at underlying issues.” Prior to the intervention, she stated that she likes learning in whole class setting because “then you get to see every single point of view from all your peers.” This is the student who was very aware of the pacing of her work and insightful about how timelines affected her learning process. Prior to the intervention, she was ambivalent about liking school. She said, “Yes and no. I enjoy learning at school, and I enjoy learning in class, but I don’t enjoy timelines and having to take certain classes and not being able to take others.” After the intervention, she stated that she likes school, giving the reasons: “I enjoy school because it’s an environment where you can sit down and just learn things. You don’t have to pick things out from whatever anyone gives you. You can be given exactly what you need to know.”

**SSGK (no change).** The third case is Samantha. Samantha is an urban high school student. Her Chemistry and Biology teacher implemented UDL. Prior to the intervention, she enjoyed learning “in groups” and through “hands-on” tasks. She stated that academically, she is “strong but not confident” and that she did not enjoy school. She

said, “I like being in the classroom. I just don’t like the outside environment. We’re just here to learn and not really here to socialize. I don’t really stick around for that [lunch or spare]. I just go home.” After the intervention, there was little change to Sam’s attitudes toward school. She said she enjoyed some aspects of school more than others: “Some kids are good, but most seem like they don’t want to be here. They’re not really into their education. I feel I’m more into my education than into my social life.”

**JCSE (positive change).** Jamie, our fourth case, is a grade one student who attends a rural school. He preferred to work with others so he was “not alone”, but thought “not much” about himself as a learner and did “not really” enjoy school prior to the intervention. After the intervention, Jamie said, “learning is more fun” because he “[got] to do math centers.” When asked about how he felt about himself as a learner, he said, “fine.” He stated that he enjoyed school because “we get to do lots of math every day.”

### Conclusions

The TBM has the potential to be a framework for implementing the eight principles of whole schooling. The social and emotional focus of block one includes programming that is intended to build a caring community, and engage students in democratic processes such as classroom meetings and cooperative learning. Family members and community are involved in intentional ways (Katz, in press). Inclusive instructional practices, when universally designed so that all have access, provide a means for teachers to design and implement instruction that maintains academic rigor, while involving diverse students in learning together through multi-leveled and differentiated instruction and authentic assessment practices. Finally, the systems and structures aspect of the TBM articulates what is required to support learning not only for all of our students, but for parents, community members, and educators as well. As a potential theory to practice pedagogy then, it is critical that research explore whether the model in fact can support the eight principles, for whom, and under what conditions. This body of research, of which this article is a part, informs not only the implementation of the TBM, but also the ongoing development of it. The TBM is not meant to be a static, packaged program. Instead, it is a weaving together of what research has told us will help students grow to live lives of purpose and meaning, contributing to their communities and experiencing joy and fulfillment. As such, it is ever evolving in its practice, while holding to its vision.

The current qualitative study sought to explore students’ viewpoints in relation to the TBM of UDL (Katz, 2012). Specifically, we were interested in the students’ perceptions about the model’s effects on their conceptions of learning, processes of learning, interdependence in learning, academic self-concept, and school engagement. As mentioned earlier, this study was a part of a larger study involving both quantitative and qualitative data, and both treatment and control groups. Quantitative data indicated significant gains in students’ achievement ( $\eta = .405$ ) and engagement ( $\eta = .549$ ), and positive growth in students’ perceptions of class climate and their social interactions ( $\eta = .497$ ) (Katz & Sokal, in preparation). The purpose of this paper was to investigate in

greater detail the shifts that had occurred for students in classrooms implementing UDL, and the possible factors influencing change.

In general, the results were very positive and supported the TBM's ability to uphold the principles of whole schooling. Students as a group progressed toward a more sophisticated conception of learning based in Hadar's (2009) classifications. They moved away from teacher-dependent learning and began to perceive their role of agents in their own learning.

Most students began the study with preferences for group learning and again commented on its value to them at the end of the intervention. Before the intervention, the reliance on a group was rarely mentioned in response to the question "How do you learn best?" but was the most common answer when asked, "Do you prefer to work alone, in a group, or as a whole class?" After the intervention, the preferences to working in a group were given in response to the former question, suggesting the group process was more salient to the students after the TBM intervention.

It was encouraging to see that in the pre-intervention interviews almost all 101 children indicated they had healthy self-concepts as learners and that most of them liked school. A small minority of students had poor self-concepts as learners and did not like school. Of these students, some did not respond to the intervention, but some did. Two students did not show improvement in their attitudes toward school, Sara and Samantha. Sara is a student with disabilities who found school boring despite the intervention. Samantha is a high school student who voiced concerns about the social aspects of schooling both before and after the intervention. Her comments indicated that she felt separated from the other students and did not think they held the same academic (versus social) focus as herself. Two other students responded positively to the intervention, Brynn and Jamie. Brynn is a high school student who commented about the pacing of instruction being problematic before the intervention. After the intervention, she commented that she liked schooling and made no comments about pacing. It appears that the UDL pedagogy was able to assuage this concern for her. Likewise, Jamie, a younger student, did not enjoy school prior to the intervention. Afterward, he liked school and attributed the change specifically to the centers involved in the TBM pedagogy.

An unexpected finding was that some children responded negatively to the noise level that accompanies group work. Students were not asked specifically about this factor, yet a number of students commented about the negative effects of ambient noise on their focus and attention during group tasks. This aspect of UDL and active learning deserves further research.

As with any research project, the current project has its limitations. First, the teachers who implemented the TBM were self-selected to participate, and it can be assumed that they supported the TBM pedagogy. Further research must ascertain the effects in classrooms where UDL is a policy mandate and where some teachers may not be as enthusiastic about this approach. Second, all teachers were implementing the TBM for their first time. It is possible that the newness and uncertainty of trying a new approach

may have affected the quality of the instruction. Subsequent studies with teachers experienced in implementing this model may yield different findings. Finally, this study occurred over a period of one year. It is possible that some student outcomes may appear later than the endpoint of the data collection. Thus, longitudinal studies would provide data on the long-term effects of the intervention on students.

Despite these limitations, the findings suggest that the three-block model of universal design for learning (Katz, 2012) is effective with students with and without disabilities. The fact that no group of traditionally under-served (e.g. students with disabilities, Aboriginal students, males, etc.) were over-represented in the findings is an indication that this new pedagogy meets its goals addressing the learning needs of diverse learners in common settings. Moreover, the qualitative students' voices elaborate the positive results of the TBM demonstrated in other studies and support a richer understanding of its effects.

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