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Parent Perceptions of Enrichment Program Course Offerings: What about Non-STEM Courses?[1)]

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The purpose of this study was to explore parents' perceptions of enrichment programs, understand their decision-making process for the course selection, as well as their thoughts of an imbalance in enrichment course offerings in favor of STEM courses. An explanatory mixed methods study, using data from an online survey (n=135) and interviews (n=15), indicated that parents tend to perceive STEM is more important than non-STEM courses. Results showed that the decision of parents' course selection for their child is influenced by a societal climate that focuses on the importance of STEM, future financial incentives and job opportunities, the rigor of STEM, and a lack of school activities that focus on STEM. Furthermore, parents take their child's needs and interests into account as the main factors in choosing which courses to sign up.

Key Words: Talent development, Enrichment program, STEM and non-STEM, Humanities, Parent perceptions

I. Introduction

1. The Needs of Support Diverse Talent Domains for Gifted Students

The National Association for Gifted Children (NAGC) and the federal Elementary and Secondary Education Act define gifted and talented students as "Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school to fully develop those capabilities" [Title IX, Part A, Definition 22. (2002)]. Many states and district programs use this definition or create

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their definition based on this; The Indiana Code defines a student with high abilities as one who “performs at, or shows the potential for performing at, an outstanding level of accomplishment in at least one domain when compared to other students of the same age, experience, or environment; and is characterized by exceptional gifts, talents, motivation, or interests” (IC 20-36-1-3). From a talent development perspective (e.g., Gagné’s Differentiated Model of Giftedness and Talent 2.0 (2010; 2018)), it is then essential to help students discover their talent domains and provide ample opportunities to develop these talents.

Out-of-school enrichment program designed for K-12 students is a common way for caregivers to expose their child to a variety of talent development opportunities. However, most academic enrichment opportunities seem to focus on STEM talent domains (Lee & Gentry, 2019) and provide only limited access to academic domains such as social sciences and humanities. Therefore, the objective of this study was to explore how parents perceive university-based enrichment course offerings and how they decide what courses to enroll their child in, and their general awareness of the variety of talent domains (e.g., STEM vs. non-STEM).

2. The Importance of Early Experience and the Role of Parents in Talent Development

Talent development researchers have identified four factors important in cultivating talent development in all domains: (a) early experience (Bloom, 1985; Olszewski-Kubilius et al., 2016; Subotnik et al., 2011; Witte et al., 2015); (b) coaching (Bloom, 1985; Colvin, 2008; Olszewski-Kubilius et al., 2016; Subotnik et al., 2011; Witte et al., 2015); (c) deliberate practice (Ericsson, 2002; Gagne, 2004; Gladwell; 2008; Witte et al., 2015); and (d) motivation (Gagne, 2010). Researchers generally recognized that parents play a crucial role in the talent development process (Bloom, 1985; Côte, 1999; Witte et al., 2015).

Bloom (1985) conducted a landmark, in-depth study of eminent personnel in a variety of talent domains. Through case studies of 120 talented young people, he found a pattern of talent development that was true across different talent domains. Bloom (1985) found that most people in his study went through three stages of talent development. The first stage being a romance stage, in which the child was first introduced to a talent domain and developed an interest in the area. In this stage, parents played a critical role, as they were the ones who exposed children to certain talent domains that they valued and enjoyed. When parents recognized an interest in their children for a specific domain, they would support them in continuing in that particular talent domain. The second stage focused on specializing in a particular talent domain through working on mastering skills and knowledge associated with the domain. In this stage, parents guided their children from exploration to training by seeking out teachers and coaches in the talent domain. Finally, the third stage focused on mastery,

which typically did not begin until late high school or early college. As the child is becoming more accomplished in the talent domain, the responsibility for talent development slowly transitions from parent to child, and the parent becomes more of an emotional and financial supporter. Bloom's (1985) study showed the crucial role of early exposure to a talent domain and the vital role parents play in introducing children to talent domains.

More recently, Côte (1999) and Witte et al. (2015) each identified three stages of talent development and came to similar conclusions as Bloom (1985) on the role that parents play in introducing children to different talent domains. Witte et al. (2015) specifically studied the role of parents in a child's talent development. Using data from interviews with the parents of 24 children who showed supreme talent in athletics, music, and language domains, Witte et al. (2015) confirmed that early experience, deliberate practice, coaching, and motivation are key factors in the talent development process. Often parents had previous involvement in the talent areas to which they exposed their children. Parents would serve as talent scouts in those early years by recognizing natural abilities and providing their child with opportunities to foster those. The literature indicates that parents are important gatekeepers when it comes to the early stages of talent development.

3. Talent Development Opportunities Outside of School

Early exposure to talent domains is significant, especially considering the time it takes for talent to develop (Olszewski-Kubilius et al., 2016; Kuo et al., 2010; Usiskin, 2000). This is true for all talent domains, so it is essential to expose children to a variety of talent domains to widely identify interests and potential in children, not just those domains that are in line with parents' interests. Failure to recognize talent can lead to lost opportunities for both the individual child and society (Davis et al., 2013).

Parents look beyond school-based learning to fully develop their child's talent (Tay et al., 2018). One opportunity for out-of-school enrichment is university-based weekend and summer enrichment programs (Pereira, Jen, Seward, & Tay, 2016). Researchers have found out-of-school enrichment programs to be beneficial for early exposure to talent domains (Olszewski-Kubilius & Clarenbach, 2012; Kim, 2016; Subotnik et al., 2011). Gagné (2010) has suggested that access to enrichment opportunities and gifted services influence gifted students' talent development. Similarly, Kuo et al. (2010) found that eminent personnel had been exposed to their talent areas through pre-school enrichment programs even before entering elementary school. After conducting a meta-analysis of 26 studies on the effects of enrichment programs, Kim (2016) revealed that enrichment programs had positive effects on academic achievement and socio-emotional development of students with gifts and talents. Moreover, schools often struggle to provide a well-rounded education and early specialization,

so out-of-school enrichment can be an excellent extra resource for parents to introduce their children to different talent domains (Olszewski-Kubilius & Clarenbach, 2012; Kim, 2016; Subotnik et al., 2011).

Academic enrichment opportunities are not readily accessible everywhere, and when families do have access to programs in their communities, they tend to focus on science, technology, engineering, and math (STEM; Tay et al., 2018). However, many people have potential in non-STEM academic domains such as language arts, social sciences, and humanities as well. However, there seems to be societal pressure and a governmental push to focus on talent development in STEM areas over promoting talent development in non-STEM areas (Cohen, 2016; Subotnik et al., 2011; Zakaria, 2015).

Researchers have found that enrichment programs focused on mathematics are the most frequently attended programs compared to enrichment programs focusing on other academic talent areas (Olszewski-Kubilius & Lee, 2004). Moreover, the same researchers have found that 63.5% of students reported they regularly engaged in science learning on their own, compared to only 35% of students participating in independent language arts learning (Olszewski-Kubilius & Lee, 2004). Are students indeed more talented in STEM, and therefore they pursue it more frequently, or were they just exposed more to STEM?

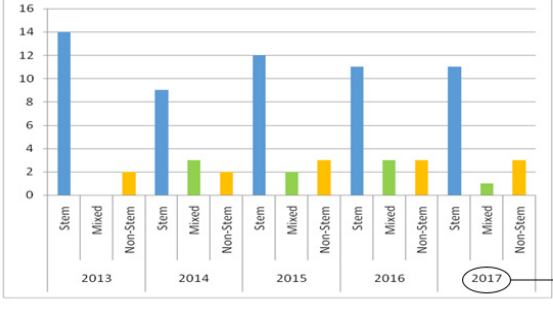
This question becomes particularly pertinent given the research on multipotentiality within students with gifts and talents. Multipotentiality can refer to having multiple abilities, interests, or the ability to develop several talents to high levels (Muratori & Smith, 2015). Multipotentiality may become a disadvantage because students may find it frustrating to choose which talent area to pursue (Collins, 2017). However, it is not always necessary to choose between two passions, especially at a young age (Collins, 2017). Many opportunities can help students develop more than one talent through diverse enrichment programs and activities. Once again, we need to acknowledge the importance of parents in these early years. Parents play an essential role in selecting talent development opportunities, and students with parents who lack resources, education, knowledge, or abilities to expose them to talent areas may be at a disadvantage. Little research exists on what influences parental decision making with regards to the talent development of their child, beyond that they tend to follow their child's interests (Bloom, 1985; Côte, 1999; Witte et al., 2015).

4. Disproportion of Subject Areas in Enrichment Programs

Students have an interest in a variety of talent domains, including STEM, humanities, social sciences, and language arts, and it is important to support various types of talent domains equally. However, the field of gifted educations and its educators do not always pay equal attention to stimulating diverse talent domains. For instance, NAGC runs 15 networks to explore particular

issues and concerns in the gifted education field. Although there is a "Curriculum Studies" network, separate networks exist, such as "STEM" and "Computer and Technology" representing a particular need and interest in research on gifted STEM education. NAGC has an "Arts" network as well. However, no networks seem to cover talent development in general humanities, social studies, and language arts domains. By the same token, after reviewing doctoral dissertation studies in gifted education from 2006 to 2016 (N = 683), Lee and Gentry (2019) found that among the studies that were based on experimental designs, curricula, instruction, or achievement, 51% of the studies used STEM subjects. In contrast, only 34% focused on non-STEM subjects, and 15% combined both (e.g., reading and math).

We found a similar trend in university-based enrichment program offerings. While working as enrichment program coordinators in the Midwestern U.S., we noticed that our programs offered a relatively large number of STEM-related courses compared to non-STEM courses such as humanities and language arts. Although our brochures offer STEM and non-STEM courses, non-STEM courses are canceled more frequently than STEM courses due to a lack of registrations. A brief exploration of our program brochures from the last five years (2013-2017) showed that 57 classes (average 11.4 per year) were STEM courses, 13 (average 2.2 per year) were non-STEM, and nine (average 1.5 per year) combined both STEM and non-STEM or did not fit in either category (Figure 1). The results show that approximately 73% of the courses were STEM subjects. Next, we examined the registration data for our 2017 Saturday enrichment program. A total of 141 students registered for this program, and three to four-course options were available for each grade level (i.e., Kindergarten, Grades 1-2, Grades 3-4, and Grades 5-8). Among the 15 courses, 11 were STEM courses (73.3%), and four (26.7%) were not. However, only seven students (5%) registered for those non-STEM courses, which led to course cancellations. On average, 11 students applied for each STEM course, whereas non-STEM courses only had one student apply per course (see Figure 1).



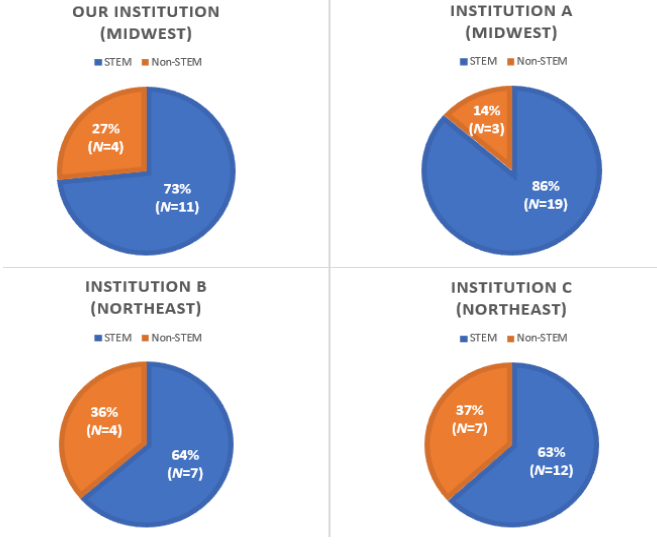
Number of Students Registered in 2017 Spring Enrichment Program				
	Kinder garten	Grade 1-2	Grade 3-4	Grade 5-8
Class1	25 (S)	11 (S)	8 (S)	2 (N)
Class2	19 (S)	13 (S)	9 (S)	12 (S)
Class3	4 (N)	10 (S)	1 (N)	13 (S)
Class4	-	3 (S)	11 (S)	0 (N)
Total	48	37	29	27

Note. S indicates STEM class, N indicates Non-STEM class.

Note. A total 57 classes that we (Purdue University) had provided were STEM courses, 13 were non-STEM, and 9 were either combining both or little vague to be in each category in 2013-2017.

[Figure 1] Course Offerings in one University-based Enrichment Program in 2013-2017

To determine whether other university-based enrichment programs had a similar imbalance between STEM and non-STEM courses in their course offerings, we reviewed course brochures of three other university-based enrichment programs (i.e., Northwestern University, University of Virginia, College of William and Mary) in the year of 2017. The results indicated that 87%, 64%, and 63% respectively were STEM-based courses, which shows that there is an imbalance in subject areas in university-based enrichment programs in favor of STEM subjects. Figure 2 provides a visual representation of the information about the course offerings in the different programs. These findings suggest that STEM enrichment courses might be more favorable compared to non-STEM courses.



[Figure 2] 2017 Course Offerings (STEM vs. Non-STEM) of University-based Enrichment Programs

Even though the case indicated above does not represent the entire university-based enrichment programs, it still illustrates one example showing the imbalance of supporting diverse talent domains. This trend was obvious in the research papers; Kim (2016) conducted a meta-analysis of all enrichment program research between 1985 and 2014 found that most studies analyzed academic achievement and socioemotional development in a broader sense and/or across achievement domains and she was unable to examine the effects of STEM enrichment and non-STEM enrichment programs separately. Further exploration of the literature indicated that few researchers have studied only non-STEM enrichment programs, however, several studies exist on STEM enrichment programs; Studies showed that STEM enrichment programs affected students positively. For example, Young et al. (2017) found that

participating in STEM enrichment programs improved students' interest in STEM, and Lane (2016) reported that students who participated in STEM enrichment persisted more in STEM learning activities and continued to participate in more STEM program afterward. Little to no research exists on the effects of non-STEM enrichment on students' interest and achievement. It is necessary to figure out what caused this imbalance, and the parental needs as they are the stakeholders who register their children for enrichment programs. Therefore, the purpose of this study was to explore parent perceptions of enrichment course offerings, how parents select enrichment courses for their children, and their general awareness of different talent domains.

This study addressed the following research questions:

Research Question 1: Are STEM-based enrichment courses perceived as more important or valuable by parents of children with gifts and talents compared to non-STEM courses?

Research Question 2: What motivates parents to decide what enrichment course to select for their children?

II. Method

1. Data Collection and Analyses

1) Research Setting and Research Phases

At the time of this study, we were both program coordinators at our university-based enrichment program in the Midwestern U.S. Our research focused on a university-based Saturday enrichment program for children in Pre-Kindergarten to 8th grade. This program is the oldest university-based enrichment program in the U.S., and it was designed to engage students in enriching content that is two to three grade levels above the students' current grade (Tay et al., 2018). An explanatory mixed methods study (Coleman et al., 2007; Creswell & Plano Clark, 2007; McMillan, 2012) was conducted to answer our research questions. This study included two phases: (a) a parent survey to explore parents' perceptions of enrichment course offerings and their decision-making process regarding enrolling their children in specific enrichment courses; and (b) an in-depth interview with parents to further explain the findings from the survey and provide more detail about parents' perceptions and their decision-making process.

2) Online Survey

We sent an online survey to parents (N = 1,031) whose children had participated in the university-based Saturday enrichment program in the Midwest at least once in the past five years (2013-2017). The survey included the purpose of the study with a statement indicating that survey participation was voluntary. The survey items included (a) demographic

information for both the parent and their child and (b) parents' ideas on how they perceive a disproportion of subject areas in an enrichment program (Cohen, 2016; Subotnik et al., 2011; Zakaria, 2015) and their perceptions of their course selection process (Bloom, 1985; Côte, 1999; Witte et al., 2015). We included a combination of Likert-type response scales, simple yes or no questions, and some open-ended questions. The open-ended questions were used to prompt parents to respond in their own words to capture a diversity of the ideas on the topic (Erickson & Kaplan, 2000; Jackson & Trochim, 2002).

A total of 157 parents responded to the survey, yielding a response rate of 15.2% (we sent two reminder emails followed by the initial recruiting email; some may argue that the rate is low, however, given that 5-30% of response rate is typical in social science survey and we did not provide monetary incentives to every participant (the participation is voluntary-based), we decided to start analyzing the data with the given rate). We analyzed data from 135 of the 157 surveys eliminating 22 surveys that had incomplete responses. The majority of the respondents were women (74.8%) and White (73.3%). Eighty-nine percent of the parents reported that their highest educational degree was above a bachelor's degree, and 60.7% of the families had an annual income above $100,000. In terms of the respondent's college major, 45.2% had STEM-related majors, and 51.9% had non-STEM majors. See Table 1 for an overview of the participant demographics.

The survey data were analyzed through descriptive statistics and a Chi-square test to see frequencies and patterns of responses. The open-ended survey results were analyzed by categorizing parents' thoughts, for an initial report of parents' experiences. The results from our survey were then used to create the interview protocol.

<Table 1> Demographic Information of the Participants

Categories	n	%	Categories	n	%
Ethnicity			Gender		
White or European American	99	73.33	Female	101	74.81
Asian or Pacific Islander	20	14.81	Male	27	20
Hispanic or Latino	5	3.7	Not listed	7	5.19
Black or African American	2	1.48	Major		
Native American	0	0	STEM	61	45.19
Multi-racial	3	2.22	Non-STEM	70	51.85
Other	6	4.44	Not applicable	4	2.96
Education Level			Annual Income		
High school graduate or below	1	0.74	$25,000 or less	3	2.22
Some College or Associate	14	10.37	$25,000 - $50,000	6	4.44
Bachelor	42	31.11	$50,000 - $75,000	15	11.11
Master	55	40.74	$75,000 - $100,000	29	21.48
Professional (e.g. MBA, MD)	2	1.48	$100,000 or more	82	60.74
PhD	21	15.56			

3) Interviews

At the end of the survey, we asked participants whether they were willing to be interviewed. Those who said yes (n = 49) provided their email address. We used maximum variation sampling as a purposive sampling strategy to understand better a wide range of thoughts (Creswell, 2007; Miles & Huberman, 1994). This sequential method approach allows us to explore the ideas of parents more precisely with different backgrounds (e.g., ethnicity, educational level, family income, and major/career). Parents' highest educational degree, family income, and ethnicity were considered first, followed by their majors (STEM vs. non-STEM) and career to maximize the diversity of the sample. However, as described in the demographic information (Table 1), the sample was not diverse enough to represent the populations. Among potential interviewees, only three parents were non-White (those three participated in our interview process), and all applicants had advanced degrees. Therefore, we diversified our sample by selecting participants from a variety of career paths. We divided participants into STEM and non-STEM careers and then randomly selected half of each group to participate in interviews.

We conducted semi-structured interviews with 15 participants (eight on-site interviews and seven phone interviews) that lasted an average of 30 minutes each. We followed the protocol and asked follow-up questions based on participants' answers, such as asking them to further clarify their answers with specific examples. The interview protocol was composed of three main sections: (a) course selection (Bloom, 1985; Côte,1999; Gagné, 2010; Witte et al.,2015); (b) imbalance of subject areas in enrichment program (Cohen, 2016; Subotnik et al., 2011; Zakaria, 2015); and (c) possible solutions (see Appendix).

All interview data were transcribed and sent to each interviewee to review for accuracy as member checks, which increased the trustworthiness of the data. Next, the interview data were analyzed using analytic induction. During the first stage of the data analysis, we each read the transcriptions to identify initial ideas about the categories (Maxwell, 2005). We then developed the initial set of nodes reflecting parents' beliefs and experiences. Based on the initial nodes, we independently read three transcriptions (20%) to develop our coding scheme further. We then compared our coding results and refined our understanding for the final application (e.g., more substantive and sophisticated nodes, including sub-nodes which delineate the main themes). For example, the initial node "Parental Influence" was divided into "Major/ Jobs" and "Discussion/Exposure" to better reflect the direct and indirect parental influence on their children's course selection.

We then coded two more transcriptions for a reliability check (Lincoln & Guba, 1985) by using NVivo (version 11) software. The initial frequency of agreement (Kappa Coefficient) between the authors was 70.1%. It is important to note here that the agreement level in NVivo

is affected by the difference in the length of coding; when one researcher codes the whole sentence and the other researcher codes only a specific part of a sentence, this results in a lower frequency of agreement. Thus, we discussed how to code similarly. The final agreement between the authors resulted in 89.3% and we divided the remaining data for final coding.

III. Results

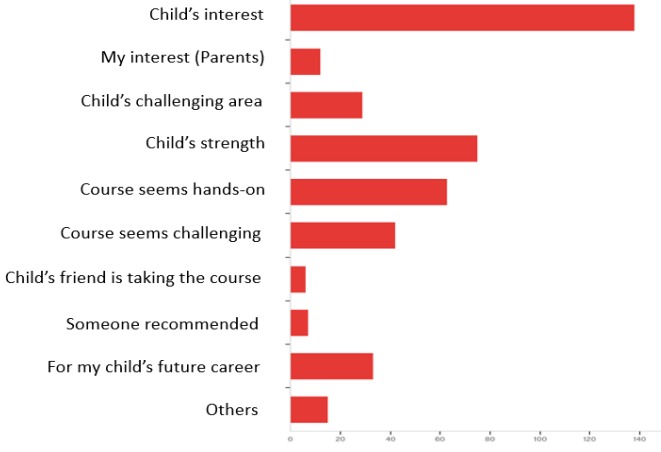
1. Phase I

1) Course Selection

In terms of course selection, parents were asked to pick the top three factors that they found most important when selecting courses (Figure 3). Among ten options, “Child's interest,” was selected most (32.9%), followed by “My child’s strength,” (17.9%), “The course seems hands-on,” (15%), and “The course seems challenging enough,” (10%). We then asked how much parents think they are involved in the decision-making process for selecting their child’s course. Most parents picked, “We discussed together and made a choice” (56.2%). However, 26% answered that they chose the course for their child (i.e., “I decided myself based on my child’s interest,” (21.2%) and “I decided myself based on what I think my child should be focused on,” (4.8%)) whereas 11.6% of the parents said that their child selected the course topic. When parents were asked how much they think their educational background (e.g., educational status, university major) had affected their child’s interest area(s) and course decision, 5.7% of the respondents thought the parent's backgrounds completely influenced it. The remaining participants almost equally selected the option, “A lot,” (25%), “A moderate amount,” (25.7%), “A little,” (19.3%), and “Not at all,” (24.3%). Among parents who considered selecting other course options (47.2%), 26.8% said that their final choice seemed better aligned with their child’s interest compared to what parents initially considered, and 2.1% of the respondents had experienced course cancellation that led to selecting a different class.

The survey included an open-ended question asking participants why they think courses are being offered in university-based enrichment programs. Fourteen percent of the participants replied they were unsure or did not respond. The other 85.9% provided diverse opinions. After reading all the answers, we were able to group them into eight categories. When parents wrote multiple reasons, we counted each separately. Twenty-seven percent of the respondents said that this is due to current societal trends highlighting STEM, and 25% thought this was related to affluent job opportunities when pursuing STEM fields. Seventeen percent of the parents regarded STEM courses as more hands-on and more related to their child’s interests; whereas, 15.4% thought that this might be because schools do not provide STEM-related courses.

Parents (7.7%) also believed that this is related to campus characteristics; specifically, the university-based enrichment program was offered at a school famous for its engineering departments. Finally, 3.9% mentioned STEM subjects are easier to quantify by scores, and 1.5% stated that it is because STEM is difficult. See Table 2 for more information about the categories and sample comments.



Note. Parents were informed to select three factors.

[Figure 3] Top Three Factors that are Considered When Selecting Coursesmore STEM

2) Difference between parents with a background in STEM vs. non-STEM

We wanted to explore whether there were any differences between those parents who majored in STEM fields and those who did not. Therefore, we analyzed data from those participants who had a bachelor's degree or above (n = 131) using a Chi-square test. We compared if participants agreed or disagreed with for the following four statements: (a) STEM courses are more important than others such as humanities; (b) Child would get more benefits majoring STEM; (c) Child should be exposed to humanities although their interest areas are STEM; and (d) Willingness to join integrated curriculum course, mixed with both STEM and non-STEM.

The descriptive statistics results showed that 56% of the STEM-majored parents and 74% of the parents with non-STEM majors disagree with the argument that "STEM is more important than humanities." Results indicated a significant difference regarding perceiving STEM as more important than humanities (item (a), as mentioned above) between the two groups ($\chi^2(1) = 4.19$, $p = 0.041$) with an effect size (Φ) of 0.2 suggesting a small, moderate practical significance. Parents who had majored in a non-STEM field tended to disagree that

STEM is more important than humanities compared to the parents whose major was in a STEM-related field. However, for the second item mentioned (i.e., a child would get more benefits from majoring in STEM), no difference was found between the two groups ($\chi^2(1) = 0.19$, $p = 0.66$). Parents with STEM majors and non-STEM majors, 79% and 76% respectively, replied that there would be more benefits when their child would major in a STEM field. No difference was found for the third (i.e., exposure to humanities is needed) and fourth (i.e., willingness to participate in the integrated curriculum), with $\chi^2(1) = 0.42$, $p = 0.52$ and $\chi^2(1) = 0.14$, $p = 0.71$, respectively. The absolute majority of parents (98% of STEM majored parents, and 96% of non-STEM majored parents) believed that their children needed to be exposed to humanities even though their child's interests were in STEM. A similar pattern (96% of STEM majored parents, and 94% of non-STEM majored parents) was found for parents' willingness to have their child participate in integrated courses. In summary, we found that no matter what their majors were, the parents perceived that their child would obtain more benefits when they selected STEM majors. The exposure to humanities was perceived as necessary, although their child's interest was STEM, and they would be willing to join an integrated curriculum course with STEM and non-STEM subjects (see Table 3).

2. Phase II

Themes were developed based on the three structures: (a) course selection in enrichment program; (b) opinions about a disproportion of subject areas (STEM vs. non-STEM); and (c) possible solution. See Table 4 for more information about the themes and the frequencies of each node. Parents' comments were quoted with the individual interview dates and their university major or current job if a major was not applicable.

1) Structure I: Course selection in enrichment programs

The first section highlighted parents' expectations and reasons for participating in the enrichment program. Also, parental impact on the course selection as well as how they perceive their decision-making process was explored.

Enrichment programs as supplements to school activities. One of the main reasons that parents enrolling their child in enrichment activities was to seek more challenging opportunities. Twenty-nine comments were made from parents regarding this. For example,

<Table 2> Parents' Opinions about Huge Amount of STEM Courses in Enrichment Program

Categories	Frequency	Example Comments
Societal Trend Highlighting STEM	35 (26.92%)	"Strong attention paid to STEM weakness in America in recent years." "There is a big culture push to increase the amount of STEM activities and courses to make Americans more competitive with other developed countries. That is what gets the media focus including advertising." "Perhaps the current emphasis placed on STEM fields in education in general--at the local, state, and national levels. Children and parents may be getting the message that STEM fields are the key to future professional success and economic well-being."
Affluent Job Opportunities	33 (25.38%)	"While we recognize the need for a balanced education, all signs point to a need and demand for STEM staff now and into the future. Our world is driven by technology and requires all students to be STEM proficient to contribute." "Parents think all the future prestigious and stable careers are in STEM." "STEM careers are higher paying than liberal arts careers." "Parents believe these classes best prepare their students for the future and will help them currently in school."
Fits Well into Child's Interests and Its Hands-on Characteristics	22 (16.92%)	"STEM relates to the real world and usually requires movement. Kids love to move." "This is the subject matter that gifted kids are often good at and interested in." "Gifted children often seem to have an interest in STEM areas, and STEM subjects seem readily adapted to the sort of hands-on, project-based learning that interests kids." "Most of the STEM classes offered hands on and experimentation, while the non-STEM appeared to be lecture. Kids want hands on, not lectures."
Lack of STEM Related Courses in School	20 (15.38%)	"Lots of communities have art programs, we can get history lectures at our local library, and music lessons can be purchased. Getting STEM outside of someplace like Purdue is difficult, especially for a homeschool family." "Science instruction has diminished in elementary classrooms due to rigorous requirements of ELA and Math standards. STEM is a popular concept right now to fill the gap." "Supplements sparse content in local schools. When students are interested in STEM, there are no/few options for deeper study or enrichment at local elementary schools."
Campus Characteristics	10 (7.69%)	"[Our institution] has a STEM reputation and parents (who live in a certain radius) whose kids are interested in those fields are drawn to it." "[Our institution] is primarily known for its strength in Engineering."
Easy to Quantify STEM Subjects	5 (3.85%)	"The stem subject is easier to show on test scores, performance evaluation." "STEM tends to be easier to quantify." "I think our culture is quicker to identify students who are advanced in some area of STEM more readily than students who are gifted in language or the arts; therefore, there is a greater demand for STEM courses for gifted students." " It's more quantitatively measured whether you're advanced."
STEM is More Difficult	3 (1.54%)	"Challenges for students with more studies." "Because it's important to stress the importance of science in the age of pseudoscience starting from younger. Americans think science is hard & we need to move away from that stigma. Most kids think science is very cool especially at the grade school level, so it's important to nurture that curiosity."

Importance of Balance (Offering Diverse Opportunities)	2 (2.31%)	"The elementary schools do not focus on languages, STEM and social studies (history) as much. In my child's class this year, it is math, reading, writing, and science. Art/music is once a week. No history, no engineering, no foreign languages... There should be a balance with arts/languages/music as these help round a child's education and help with their creativity." "I feel that many families focus on skills that lead to high-paying jobs rather than well-rounded learning... For our sake, my daughter was disappointed that the poetry class was cancelled. In another vein, schools push gifted programming for STEM fields and neglect humanities so kids and families may come in biased as well."

Note. 14.07% (n=19) of parents replied that they are unsure about it or left it blank

<Table 3> Chi-square Results of Parental Perception by Their University Major

Question	Status	STEM	Non-STEM	χ^2	Φ
STEM is more important than humanities	Yes	21 (44%)	18 (26%)	4.19*	0.19
	No	27 (56%)	52 (74%)		
More benefits when majoring in STEM	Yes	38 (79%)	53 (76%)	0.19	0.04
	No	10 (21%)	17 (24%)		
Need to be exposed to humanities although interested in STEM	Yes	47 (98%)	67 (96%)	0.42	0.06
	No	1 (2%)	3 (4%)		
Willingness to participate in integrated (STEM and Non-STEM mixed) course	Yes	46 (96%)	66 (94%)	0.14	0.04
	No	2 (4%)	4 (6%)		

Note. * = p<.05

“They [Gifted students] talk about things at a much higher level··· So, going to a class for gifted kids and then get to talk with a college professor about literature and understanding of the world, she liked that. The depth of discussion was really exciting for her. She had lots of cool things to say about it” (P9-Educational Psychology-100517).

Parents also indicated that they enrolled their children in specific out-of-school enrichment courses because the school does not provide curriculum in that area. For example, “[I would like] Latin language, you are not going to get that [in the school]” (P15-Homemaker-101517). Parents perceive enrichment programs as a way to supplement the service provided in regular schools.

Meeting a child’s needs and interests. Twenty-three comments referenced the child’s interest as the primary factor when selecting courses. When asked what would happen if the parents noticed that their child’s area of interest or aptitude is the opposite of their previous course selection in our program, the majority of participants stated they would subsequently enroll in different courses in the future to meet their true interests or aptitude (e.g., “I will let them try different things out” (P11-Anthropology-100917)). Other participants, however, suggested that they still follow their child’s decision no matter what the aptitude or interest results reveal: “If it were showing over and over, that [my child] should be a creative writer, then I would probably push him in that direction, but if he sees a class that he wants, I am not going to

force him to take something different" (P5-Science Education-100517) and "I think that even if I observed new things about his interests [or aptitude] which gave me different information, I would still follow him in that direction" (P6-Psychology-100517).

Decision-making process. Twenty-three references were made regarding the decision-making process. One frequently mentioned process was discussing available options with the child. One parent stated,

"I let her make these decisions. I read her the program, and we talked about what are the possible things in the subject matter that would come up··· I let her choose because I do not know what is going to be her comfort personally, not just intellectually. I want her to be comfortable with her education because I do not want her to stop learning" (P8-Officeworker-100617).

Other parents provided a bit more guidance. For example, parents said: "I picked [courses] based on things that we don't do or what I thought would most interest her. I did not need to ask her opinion [because] I feel like I know her pretty well," (P7-Business administration-100517) and "If she says she wants to do the same thing she has done before somewhere, I would gently tell her and try to sway her··· So basically, I let her decide, but if she needs guidance then I provide it" (P12-Chemistry-101217). Although some parents reported they chose courses without discussing it with their child, they still wanted their child to have a new experience. As such, no single pattern was found on the decision-making process; it depended on individual parenting style and family environment, not their educational background or careers.

Parental Influence. Thirty-two comments were made regarding parental influence. Among the participants, 30% (n = 4) thought that their majors or jobs did not affect their child's interest areas or course selection (e.g., "I do not think it impacts too much, because the kids' dad and I, we were both in science majors, and our oldest daughter does not want anything to do with science and math" (P1-Biology-100417)). However, the rest of the parents (70%) indicated that their career and experience might directly influence their child's interest areas. For example, one stated that,

"Because my husband was a computer engineer, they would do computer stuff all the time. I know they took apart computers and tried building them. My son got that experience, and I think that is a lot of where his interest is, it is because of his dad... Also, whenever I do a lab at school, he would come into my classroom..." (P5-Science Education-100517).

Although it is not explicitly related to parents' majors or jobs, the majority of the parents seemed to think that their lifestyle and general interests affected their child's interest. For instance, "They hear us what we are talking about at home with each other. And when we go to museums or go to places interesting to us, then they observe it too··· Sometimes we show them videos that interest us so that they could also learn more" (P3-Computer Engineering-100517) and "I think from a very young age, we have been reading to them, doing little science experiments, being out in nature, just talking about how things work,

letting them have time to experiment with things, and just placing a value on learning and reading" (P11-Anthropology-100917) support the claims.

2) Structure II: Opinions about a disproportion of subject areas (STEM vs. non-STEM)

A second major section presented hereafter with several subthemes covers parents' thoughts on why there are considerably more STEM courses compared to non-STEM courses in several university-based enrichment programs.

<Table 4> Examples of Coding and Frequency of Use

Structure	Theme (Main Coding)	Number of References	Examples
Structure I: Course selection in enrichment program	Expectation on enrichment program	29	"...exposure to science and history which they don't really get so much in the classroom than they would in extracurricular activities like your camp"
	Meeting child's needs and interests	23	"I usually ask them what they want to do and what interest them. They're at a point in their lives when they're still exploring, trying to figure out what interests them and what doesn't. So I will let them try different things out"
	Decision making process	17	"I let her make these decisions. I read her the program and we talked about what are the possible things in subject matter that would come up. We sit and talk about it. We weigh all the pros and cons…"
	Parental Impact	32	"Because my husband was a computer engineer, they would do computer stuff all the time. I know they took apart computers and tried building them. He got that experience, and he got that time. I think that's a lot of where his interest is, it is because of his dad… "
Structure II: Opinions about a disproportion of subject areas (STEM vs. non-STEM)	Cultural and Societal Climate	12	"I feel like our country is trying to keep up with other countries in the world that might do better in technology fields"
	Financial Incentives and Job Opportunities	6	"It pays more when you're an adult with those (STEM) jobs. So I think that most people push their kids to go in that direction…"
	Lack of School Resources and Funding	9	"It's hard to find STEM-type activities for kids so I think that might be part of the reason why there's an imbalance (between STEM and non-STEM subjects)"
	Difficulties and Rigorousness of STEM	4	"Technology, math, and engineering always seem to be harder subjects. So maybe they (parents) feel like kids need more practice in that"
Structure III: Possible solution	Integrated Curriculum	22	"Real life is more like a mix. If they (students) can see how they go together, I think its beneficial..."
	Marketing: Appealing Its Importance	19	"When it was printed in the brochure… did it say stuff about hands-on activities? How was it presented to the parents and the kids of what was going to be in the class?..."

Cultural and Societal Climate. Twelve parents (80%) commented that the current STEM-oriented social climate is one of the reasons for the overrepresentation of STEM courses in university-based enrichment programs. For example, parents commented "I feel like our country is trying to keep up with other countries in the world that might do better in technology fields" (P1-Biology-100417) and "I think there is such a huge focus on STEM. We hear in the news that students in America are behind on the rest of the world in math and science. So, I think people are trying to compensate for that in part" (P11-Anthropology-100917). As such, the parents perceived cultural or societal pressure to focus on STEM education.

Due to this cultural and societal climate, individuals put more value on STEM, and some even shared their concerns about this: "It is tempting to say that as students get older, science classes will look good on a transcript for application to college or jobs. The teachers who teach the classes do not push that, but I think the kids know what is valued in our society. Parents may be pushing their kids that way," (P9-Educational Psychology-100717) and "My hunch is that the biggest driver is just sort of the cultural climate right now, and the messages that are out there that the parents hear about STEM and STEM careers. I worry that we are over-blowing it" (P6-Psychology-100517). This societal focus on STEM might be reflected in school-based enrichment opportunities which can fortify the value that parents give to the STEM field over other academic domains.

Financial Incentives and Job Opportunities. Six participants mentioned jobs and financial benefits of STEM careers such as "I think many jobs in the STEM fields pay well. So people push kids to work on that." (P1-Biology-100417). Another parent mentioned, "It pays more when you are an adult with those (STEM) jobs, so I think most people push their kids to go in that direction. It may not necessarily be true, not in all cases, but I think that is why some parents favor those courses, or there are more courses out there in that area" (P15-Homemaker-101517). Job opportunities and salary matter when making a career decision; therefore, some parents believe this could explain the disproportion of subject areas in enrichment programs.

Lack of School Resources and Funding. Most parents perceived STEM to be highly valued in society, yet they also thought schools do not offer enough STEM enrichment due to a lack of resources and funding. This theme had nine references, for example, "It is hard to find STEM-type activities for kids, so I think that might be part of the reason why there is an imbalance (between STEM and non-STEM subjects)" (P1-Elementary Education-100417). One participant, a science teacher, discussed the issue in detail:

> "It clicked for me why there are so many that are going into STEM programs and not language arts. In my opinion, because it is not offered in schools. As a science teacher, I am telling you that there is not a whole lot of hands-on focus on science. The school

curriculum is focused on the ones that are being tested. I taught 6th-grade science a couple of years ago. That was something tested, but I still did not have many resources" (P5-Science Education-100517).

This aligns with what we presented earlier; parents look for STEM enrichment in out of school programs because it is not being offered in schools. Schools may not offer it because there is a lack of funding.

Difficulties and Rigorousness of STEM Subjects. Four parents mentioned that STEM courses are more challenging and rigorous compared to non-STEM courses. Therefore, early exposure is essential. For example, a parent stated that "I think STEM is harder, so people want to get their kids going from a young age to pique their interest. If you can pique their interest from a younger age, then it may stick with them" (P2-Chemistry-100417).

3) Structure III: Possible solutions

There are many ways of exposing students and supporting them in a variety of talent domains. We asked parents for suggestions to increase the diversity of topics offered in enrichment programs. We explicitly asked parents' opinions about integrated curriculum (i.e., courses that cover content from both STEM and non-STEM domains) as a possible solution.

Marketing. Appealing Its Importance. Parents seemed to all agree that marketing played a vital role in course selection. They emphasized that course descriptions in brochures are essential tools to be used to make non-STEM courses seem more appealing. Nineteen references were made to finding STEM course descriptions more attractive because of references to "hands-on activities." Parents suggested this should be emphasized in non-STEM courses as well. For example, a parent mentioned that "At that age, I was looking for real hands-on things (for my child). Sometimes it is easier to think of STEM as being more hands-on than a music class or a social studies class" (P10-Elementary Education-100917).

Other ideas included increasing outreach efforts. One parent said, "When we went downtown, I encountered a couple of events with the STEM programs. My son joined the one-day project using Lego pieces" (P14-Liberal Arts-101317), indicating that more outreach opportunities exist for STEM compared to non-STEM areas. We also found that the tuition for the courses may be a problem. One parent shared her idea, "It might just be how you advertise it or the price point. I would send my daughter to writing course, but it depends on the cost, and I would pay more for STEM versus non-STEM courses" (P2-Chemistry-100417).

Finally, some parents suggested focusing our marketing on emphasizing the importance of a well-rounded education. For example, a parent suggested that "Trying to widen people's appreciation for what is valuable and helping parents to be more open to more things [can be the suggestions]. The colleges are doing that constantly right now, trying to talk about what a wide-ranging and

well-rounded education is. Things like this can play a role" (P6-Psychology-100517). As such, tuition, marketing, and parent seminars may affect parents' decision making.

Integrated Curriculum. Twenty-two comments referenced that real life is not explicitly separated into STEM and non-STEM, and modern society requires well-rounded people. Parents stated, "We need everything in society as well, including people who can think things through. You may be very smart in what you are doing, but overall education that one needs to be a good citizen and to be able to think critically through a lot of things is missing," (P11-Anthropology-100917) and "It is rare to have only science in your life and your career··· and real life is more like a mix. If they (students) can see how they go together, I think it is beneficial. It might drive them to do a better job in the future by seeing how they fit together" (P3-Computer Engineering-100517).

Parents also think that although the integrated curriculum is widely used in early childhood settings, it is still appealing to a broader group of kids and particularly well aligned with gifted education. It fits well with the characteristics of gifted students who enjoy being creative and critical. Parents shared their opinion such as "I think things do integrate and mix across··· It does feel like it is reflective of some of the principles of gifted education, being more integrated, more project-oriented, having the chance to follow kids' interests" (P6-Psychology-100517) and "High-ability students have the ability to make a lot of connections. They like to see the big picture, they like to put things together, and they like to jump from one idea to another. So, a theme-based or a broader course integrating different subject areas makes more sense to them compared to just doing math or doing just art [separately]" (P10-Elementary Education-100917).

Others also mentioned that an integrated curriculum might help students develop critical and creative thinking abilities. For example, comments such as "[By taking integrated curriculum], she will learn to be critical, think about society as a whole and question a tradition," (P11-Anthropology-100917) and "[Integrated curriculum] might generate a different kind of thinking that may be completely different than what they would expect" (P1-Biology-100417) support this argument. As such, parents perceived an integrated curriculum as useful for all students because it is more fun, engaging, and even practical. They also perceived an integrated curriculum as an excellent way to expose children to new subjects or topics. Children may not have been exposed to if the course would not be an integrated course.

IV. Discussion and Implication

An initial exploration of four enrichment program brochures showed a discrepancy in

course offerings, favoring STEM enrichment courses over social sciences, humanities, and language arts. Moreover, we found that non-STEM courses were canceled at higher rates due to low enrollment. Thus, we wanted to explore parent perceptions of enrichment course offerings and how parents decide on what courses to enroll their children in.

The first aim of our study was to explore what course offerings appealed to parents and why. Results from our surveys and interviews confirmed that STEM courses appealed to parents most. Parents indicated this had to do with a perceived societal pressure or government push to provide STEM programming for their children, and they perceived STEM courses as more rigorous and more beneficial for future opportunities (Cohen, 2016; Subotnik et al., 2011; Zakaria, 2015). Moreover, several parents indicated that their children had a keen interest in STEM domains. However, in the interviews, parents – particularly those who did not have a STEM background – tended to emphasize the importance of non-STEM talent development as well. An important finding of our study relates to the fact that parents tended to choose STEM courses in university-based enrichment programs because STEM education is harder to come by both in regular schools and other community-based enrichment programs. This aligns with the notion that out-of-school enrichment programs provide opportunities for talent development, where elementary schools are failing to provide well-rounded opportunities (Olszewski-Kubilius & Clarenbach, 2012; Kim, 2016; Subotnik et al., 2011).

The second aim of our study was to add to the existing body of literature on talent development by exploring the decision-making process of parents and children enrolling in enrichment programs, which was a clear gap in the literature. Results from the survey and interviews indicated that a child's interests and strengths were the main driving forces behind course selection, with over half of the surveyed parents indicating that their child is actively involved in the course selection. Parents generally did not think that their educational background or interests were an essential factor in course selection. However, some mentioned that it did affect their choice to send their child to an enrichment program. However, previous researchers have emphasized that parents tend to introduce their children to talent development opportunities that align with parents' interests (Bloom, 1985; Côte, 1999; Witte et al., 2015). This can potentially be explained by the fact that parents may not be aware of how much their professions and interests influence children. We interviewed parents with children in kindergarten and elementary. At this age, students have often already established clear interests (Bloom, 1985; Côte, 1999; Witte et al., 2015). Therefore, parents are indeed feeding that interest, and they may no longer be aware that they initially introduced the child to this field of interest.

One limitation of this study is generalizing the findings to a larger population. We do not know how typical these patterns are for other groups of parents, particularly those from

low-income families, because the parents who joined the university-based enrichment program may already know the importance of the educational input for their child. This study cannot be generalized beyond its setting because most of the parents were White, with high family income levels, and more than half of them held a graduate-level degree, as indicated in the demographic information. Also, based on the low response rate, the responses may only represent the perceptions of parents who already have strong opinions about our research topic. The initial intent was to analyze parent perceptions by participant background information. Due to the homogenous nature of our sample, however, we restrained from doing that and used non-parametric statistics. We do encourage future research to focus on a more diverse population to establish further if our findings are transferable to those settings as well. In addition, as the current research including was a initial stage figuring out parents' perception in one university-based enrichment program, the survey questions in the future study can be modified and validated before widely used.

Following the results from this study, one suggestion for future research would be to examine more closely how parents and students decide upon enrichment courses and how that changes as the child gets older. In particular, it would be interesting to broaden this question to all types of enrichment opportunities, including not only university-based programs but also school and community-based programs. Following the hypothesis that parents may not be aware of the influence their interests and professions have, that may also warrant further research. Our results indicated that most students enrolled in courses that aligned with their parent's background; however, some parents did not agree that their interest or career influenced their child's interest.

Several parents mentioned that their educational background played an essential part in their decision to enroll students in enrichment programs in general. Future researchers may want to explore in more detail how educational background may affect the decision to enroll students in enrichment programs. Moreover, our findings suggested that parents seek STEM enrichment because it is not always offered within schools. This finding raised several questions for future directions such as: "Why do schools not offer more STEM opportunities?" and "What role does our society play in shaping school priorities?" Finally, we hope to inspire more people to research early childhood exposure to various talent domains and ways of doing this, with integrated curriculum being one option.

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=Abstract =

Parent Perceptions of Enrichment Program Course Offerings: What about Non-STEM Courses?

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The purpose of this study was to explore parents' perceptions of enrichment programs, understand their decision-making process for the course selection, as well as their thoughts of an imbalance in enrichment course offerings in favor of STEM courses. An explanatory mixed methods study, using data from an online survey (n=135) and interviews (n=15), indicated that parents tend to perceive STEM is more important than non-STEM courses. Results showed that the decision of parents' course selection for their child is influenced by a societal climate that focuses on the importance of STEM, future financial incentives and job opportunities, the rigor of STEM, and a lack of school activities that focus on STEM. Furthermore, parents take their child's needs and interests into account as the main factors in choosing which courses to sign up.

Key Words: Talent development, Enrichment program, STEM and non-STEM, Humanities, Parent perceptions

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