Student engagement in a differentiated higher education system in Ethiopia: a multilevel analysis

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Abstract
Purpose – The purpose of this study is to examine effects of classroom-level and student-level factors on student engagement in the context of a higher education system vertically differentiated into research, applied and comprehensive university types.
Design/methodology/approach – The study used a cross-sectional multilevel design to explain student engagement based on class and student variables. Specifically, the study collects data from 656 students and 61 randomly selected teachers at both levels and uses multilevel modeling to explain relationship patterns.
Findings – The results show that institutions vary significantly in student engagement scores. In addition, while a significant variation is found at the student and classroom level, the effects of academic achievement, instructional quality, teaching experience and teacher qualifications on student engagement vary across classrooms in institutions. However, the interaction effect of classroom and student-level variables on student engagement remains non-significant.
Originality/value – The main contribution of this lies in the explanation of student engagement using classroom and student level factors in a vertically differentiated higher education system using multilevel modeling. Student engagement varied in classrooms research universities applied and comprehensive universities.
Keywords Differentiation, Student engagement, Academic achievement, Teacher qualification, Teacher experience
Paper type Research paper

Introduction
There has been a growing concern that the traditional measures of student success (like satisfaction, completion rates) required a new ontological perspective of understanding and explaining student experience in higher education (Bowden et al., 2021; Kahu and Nelson,

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Student engagement is argued to be the most appropriate concept to frame, understand and explain quality education (Krause and Coates, 2008; Mekonnen, 2007) and counter achievement problems (Yang et al., 2023). It is widely recognized as critical for success in higher education (Kahu and Nelson, 2018). Arguably, there is more focus on student engagement with higher education, especially how students may participate in their university’s decision-making processes (Carey, 2018). Scoping the realm of participation, researchers have recently identified student engagement areas as educational developments, student-teacher relations for curricular justice, extra-curricular activities, student voice, learning analytics, and agentic engagement (Abbot, 2023; Adams, 2023; Beig, 2023; Cook-Sather and Loh, 2023; Corr, 2023).

Despite widespread acceptance, there is not universal agreement on the conceptualization of student engagement because of its context-sensitivity, evolving nature, and multiple meanings for different contexts that reinforce vagueness (Ashwin and McVitty, 2015; Kahu and Nelson, 2018). For example, in Australia, it means involvement in instructional activities and environmental conditions that are related to high-quality learning (Krause and Coates, 2008). In the UK, student engagement refers to both participation in governance related to student voice (student union, student representation) and curricular decisions (student assessments, learning activities, curricular and extra-curricular participation) (Buckley, 2018). In developing countries like Libya, student engagement is conceived as participation in institutional governance in both academic and administrative matters such as affairs services, student representation, active participation in student unions or councils, teacher evaluations, and participation in university events (Almarghani and Mijatovic, 2017). Student engagement, despite such conceptual haziness, was introduced in higher education with the aim of shifting from knowledge sharing to the development of competencies to bridge the disconnection between what was taught in classes and what was needed in the labor market (Koenen et al., 2015).

Student engagement is distinctive and sensitive to institutional realities like mission, structure, learning environments, and facilities. For example, by recognizing the importance of institutional strategies in promoting engagement, it is believed that every university uniquely shapes its students’ engagement (Carey, 2018). It has also been suggested that these meaningful differences that institutions create correspond with their specific mission thereby practices that promote approaches to student engagement. Unique institutional missions vary primarily from research types through institutions that balance teaching and research to institutions that have a predominantly teaching mission (Kezar and Kinzie, 2006), evolving through the principles of differentiation.

Differentiation, viewed as a process in which new entities emerge in a higher education subsystem (Van Vught, 2008), occurs in vertical and horizontal differentiation patterns (Iannelli et al., 2018; Teichler, 2020). Whereas horizontal differentiation implies variations in specializations of programs of similar status, vertical differentiation implies reputations such as research and doctoral degree-granting universities (prestigious) and bachelor-degree-granting universities (less prestigious) based on intellectual quality (Reimer and Jacob, 2011; Teichler, 2020). If so, a legitimate inquiry is the need for empirical support if student engagement reveals similar or different patterns in classrooms in the differentiated higher education subsystem.

Research results are mixed as to whether differentiated or isomorphic higher education subsystems promote greater engagement. On the one hand, there is evidence that the specific and distinctive mission, policies, and practices appear to have more impact on engagement and success than the broad institutional mission related to institutional type (Kezar and Kinzie, 2006). This suggests that differentiated systems with specific missions increase student engagement more than undifferentiated higher education systems. For example, institutional structures, the differentiation of the curriculum, and the research orientation of
the institutions significantly predict student engagement (Porter, 2006). Though every institution’s engagement strategies vary depending on its unique learning environment, empirical data is still needed to identify important institutional differences that might affect the way engagement is created among vastly different institutional types within a differentiated subsystem (Kezar and Kinzie, 2006).

On the other hand, studies exploring the link between university differentiation and student outcomes revealed that academic standards decline in a differentiated type of higher education subsystem system. This is due to the emergence of low-quality segments in the tier as much as a politically determined uniform (isomorphic) standard subsystem (Meier and Schiopu, 2020). Despite such arguments, there has been an increasing interest worldwide in differentiating the higher education subsystem through the creation of tiered institutions in response to the growing demand for higher education (Hunde et al., 2023; Reimer and Jacob, 2011).

In the Ethiopian higher education context, differentiation depends on program offerings, functional focus, institutional status, etc. In light of the education development roadmap (Boateng, 2009; Hunde et al., 2023). With differentiation as a policy option and its' supposed benefits to multiple stakeholders, little scholarly attention has been devoted to an analysis of its implementation (Meier and Schiopu, 2020). This study examines how engagement in differentiated subsystems is related to classroom, teacher, and student factors via multilevel modeling to explain unique and contextual interactions. It was found that students at public institutions and research universities were less engaged than their counterparts at private colleges and other institutional types (Hu and Kuh, 2002). Accordingly, it is reasonable to hypothesize that student engagement varies across classrooms in research, applied, and comprehensive university categories in Ethiopia.

Student engagement is a function of the interaction among unique institutional policies, learning environments, learning resources, instructional quality, teacher and student characteristics, as well as teaching methodology and peers (Almarghani and Mijatovic, 2017; Amerstorfer and Frein von Münster-Kistner, 2021; Hu and Kuh, 2002; McFadden and Munns, 2002; Porter, 2006). These factors associated with quality education provision are only meaningful when accompanied by strategies to facilitate student engagement (Mekonnen, 2007). Consequently, policy documents for accreditation of higher education institutions around the globe include requirements dedicated to student engagement, such as participation in university governance or quality assurance processes (Almarghani and Mijatovic, 2017).

Student engagement is not only the result of institutional-level policies, practices, or reputation but also of teacher- and student-level variables. At the institutional level, learning environments that adopt technology for creating engagement between faculty and students, enhancing academic collaboration, and creating academic challenges appear to foster engagement (Kezar and Kinzie, 2006). Instructional quality, dependent on the institutional environment, also explains significant variation in student engagement (Devlin et al., 2009). At the teacher level, teaching approach, teachers’ roles, teachers ICT usage, assessment, and feedback (Almarghani and Mijatovic, 2017) account for student engagement.

At the student level, perceived institutional learning environments (Guo, 2018; Hu and Kuh, 2002), prior academic achievement (Guo, 2018), and the learning experience (Almarghani and Mijatovic, 2017) are found to affect engagement. In spite of mounting evidence on factors that affect student engagement, the determinants of student engagement in higher education are still blurred, calling for the need for more research (Tani et al., 2021; Xerri et al., 2018). Contextually, research results from developed countries reported positive effects of predictors, yet little or no research has been conducted in countries that are only now starting to adopt the concept of student engagement in their policies (Almarghani and Mijatovic, 2017). Student engagement literature has offered different meanings for different
contexts and lacks clear articulation of the contributing mechanisms or factors to an individual’s student engagement (Kahu and Nelson, 2018). Specifically, unique experiences of student engagement in the Ethiopian higher education context remains largely unknown (Tadesse et al., 2018). More importantly, student engagement as a function of classroom, student, and cross-level interactions in the context of differentiated higher education system in Ethiopia is nonexistent.

Based on the previous literature, this study hypothesizes that classroom, teacher and student, variables vary correspondingly with institutional reputation, such as research, applied, and comprehensive types of universities in Ethiopia. Research that looks into the operational effectiveness of student engagement or explores the experience of students in representative roles among universities in a differentiated higher education subsystem in Ethiopia is scant. Taking engagement as a measure of quality education that may vary depending on universities’ organizational culture, this paper hypothesizes that the milestones that form the basis of differentiation in Ethiopia (Hunde et al., 2023) and student engagement vary across different types of universities. By adopting variables that underpin the differentiation of the higher education subsystem in Ethiopia and student engagement from the extant literature on higher education policy discourse, it will be reasonable to hypothesize that variables such as teacher qualification, student academic achievement, teacher experience, and quality of teaching affect student engagement differently across research, applied, and comprehensive university categories. Specifically, instructional quality affects student engagement more in research universities than in applied or comprehensive ones. The assumption is that teaching quality is multidimensional and that the identification and use of relevant indicators of teaching quality are dependent on the institutional environment (Devlin et al., 2009). By facilitating the interaction of students with the environment and acknowledging students’ roles as co-creators of knowledge, students can raise their engagement and realize positive learning outcomes (Collaço, 2017).

Hypotheses

**H1.** Student engagement varies across classrooms in research, applied, and comprehensive universities in Amhara Regional State.

**H2.** The relationships between academic achievement and student engagement vary significantly across classrooms in differentiated universities in Amhara Regional State.

**H3.** The effects of instructional quality, teaching experience, and teacher qualification on student engagement vary significantly across classrooms in differentiated universities in Amhara Regional State.

**H4.** The interaction effects of academic achievement with instructional quality, teaching experience and qualification significantly vary across classrooms in differentiated universities in Amhara Regional State.

**Methods**

**Design**

The current study employs a cross-sectional, multilevel design (See Abrell-Vogel and Rowold, 2014; Feng et al., 2016). With this design, it examines multiple relationships among student academic achievement, teacher experience, teacher qualification, instructional quality, and student engagement. It follows a design for determining these relationships from a sample of
institutions from the three types of universities, research, applied, and comprehensive universities, teachers and students in these institutions. In multilevel studies, researchers employ multistage sampling to determine sample sizes at each level (Bosker and Snijders, 2012; Teddlie and Tashakkori, 2009; Zhou et al., 2019).

**Context of the study**

Higher education subsystem in Ethiopia underwent a three-category differentiation system, namely research, applied, and comprehensive universities. Some of the milestones that constitute the differentiation process include the proportion of teaching staff profiles with publications, the proportion of graduate students and programs, the proportion of research funding mobilizations, the proportion of joint graduate programs, and the proportion of teaching, researching, and project development activities. From these variables, instructional quality is measured through a questionnaire. Student engagement has been considered to provide reliable student outcome-proxy evidence to institutions for guiding change (Devlin et al., 2009). Therefore, this study aims to investigate the differences in the effects of such variables on student engagement in the context of three selected higher education institutions from each category or type.

**Participants**

From these institutions, two levels of samples populate the study, namely, student and classroom levels. Sixty-one teachers leading classroom teaching in these institutions are first selected and then 656 students are in these same classrooms using multistage sampling. The students are selected from graduating classes because we assume that they are more experienced in different types of involvement, including decision making, governance and student voices as represented by agentic engagement. Gender-wise, 354 (about 54%) of the students were males, and 302 (about 46%) were females.

**Procedure**

Teachers who were willing to fill out questionnaires were informed about the purpose of the study, as they appear to teach in class. When the teacher and students gave their consent, a questionnaire was dispatched to both. Teaching staff in all three institutions helped administer the student questionnaire. The researchers gave orientations to teachers and students on the directions for responding to the items to ease the completion process.

**Measures**

*Dependent variable:* Universities have given priority to student engagement as part of their policy provisions as engagement gains new meaning and significance (Lawson and Lawson, 2013). Thus, student engagement is considered an outcome proxy measure for policy effectiveness, such as differentiation in educational institutions. Tadesse et al. (2018) contextualized and validated the Australian Survey of Student Engagement into an Ethiopian university context and found an empirical support for a nine-factor solution. However, the research report itself acknowledged limitations in sample size and therefore generalizability of the findings to the wider student population. Moreover, conceptual evaluation of the factors suggested that some factors seem to have overlapping meanings. For example, conceptually, one of the factors, student-teacher interaction will not happen in a categorically different manner from the second factor, classroom interaction.

The instrument adopted in this study is the student engagement scale validated by Veiga (2016). Initially, the scale was parsimonious for measuring the three widely accepted
dimensions of student engagement in school, i.e., cognitive, affective, and behavioral. Lately, the scale has been updated and validated including a fourth dimension, agentic engagement. The student engagement scale used in the current study was also pilot-tested prior to actual use to account for cultural differences and adapt it contextually. The instrument is found to be reliable to measure the construct in a higher education context in Ethiopia. Specifically, the four scales achieve a Cronbach alpha ranging from 0.56 to 0.94, each with five items. Response alternatives range from (1) strongly disagree to (5) strongly agree.

**Independent variables:** Based on literature on differentiation in Ethiopia, teacher qualification, instructional quality, teaching experience, and student academic achievement (measured by CGPA of graduating class students) were considered as independent variables. Instructional quality is measured using questionnaire developed based on teacher competencies necessary for quality teaching. The rationale for adopting this instrument is that the higher education system in Ethiopia has long adopted competency-based curricula, whose successful implementation requires the development of teaching competencies. This validated instrument (Rodríguez et al., 2020) has been adopted to take contextual realities into account. The reliability indices for the four subscales ranged from 0.78 to 0.93. Response values range from 1 (strongly disagree) to 5 (strongly agree).

**Data analysis**
Students in the same institution typically engage or behave more similarly than students from different schools, with contextual variations (Pituch and Stevens, 2016). This asserts that education studies commonly have nested data structures where participants are clustered together in groups at different levels. Methods of inference that ignore the existence of such data structures and contextual variations are subject to both interpretational and statistical errors (Tabachnick and Fidell, 2019). Consequently, using a single-level regression analysis will obviously be problematic due to the apparent presence of multilevel influences (i.e., student-level and classroom-level). This is addressed by adopting multilevel modeling as students are nested within classrooms in research, applied, or comprehensive types of universities.

In the current study, two-level multilevel analyses were conducted, where students were the Level 1 units and classrooms were the Level 2 units. The analysis followed the three-stage approach of multilevel modeling. In the first stage, the analysis produced an unconditional model with no independent variables at the student or classroom levels. This model provided a measure of the variances within and between classrooms in student engagement. At the second stage (random coefficients model), a student-level variable, namely academic achievement, was added to the unconditional model to test whether its relationship with engagement varied significantly across classrooms. At the last stage (conditional model), classroom-level variables pertinent to the milestones of differentiation, namely quality teaching, teacher qualifications, and teaching experience, entered the model. Data analyses were carried out using SPSS v23. Missing data were replaced by the series mean before the start of the analyses. The student academic achievement variable at level 1 and classroom variables, namely quality teaching, teacher qualifications, and teaching experience at level 2, were centered on the grand mean.

**Results**
Table 1 summarizes descriptive statistics and intercorrelations for all variables. Student level variable, academic achievement shows positive significant correlations with classroom level variables, which are teacher experience, instructional quality and student engagement.
**Interclass correlation**

Prior to the analysis of any nested dataset, the question of whether multilevel modeling is appropriate or not must be answered in the affirmative. One has to ask, “How much variation in student engagement is explained by the variables at level 2?” Answering this question involves the calculation of the intraclass correlation (ICC). We can compute the intraclass correlation coefficient (ICC) and consider it an indicator of whether there is evidence of clustered observations within Level 2 units. Heck et al. (2014) noted that 0.05 is often considered a “rough cut-off” for the presence of evidence of substantial clustering. They added that even trivial amounts of clustering (where ICCs are <0.05) may still have substantial effects on inferences when performing single-level regression. The ICC is computed by considering variations in the parameters of teacher and student levels. The ICC is estimated to be 0.8, which indicates that after controlling for the first-level predictor, there remains nontrivial variation in student engagement, suggesting that 80% of the variance occurs between classrooms. This suggests that follow-up analysis using multilevel modeling is reasonable.

**Student- and classroom-level variations in student engagement across university types**

The fixed effect or intercept of the null model, estimated as 69.22, as presented in Table 2, shows that student engagement scores varies significantly among students within classrooms in the three universities (t = 57.6, p < 0.001). Thus, there is significant student level variance explained within classrooms, supporting the first hypothesis. Similarly, the random effect for the classroom levels (Intercept) with a variance of 63.11 (Wald Z = 5.01, p < 0.001) indicates that there is indeed significant variability in average student engagement scores between classrooms in these three types of universities. The residual variance of 15.67 (Wald Z = 16.85, p < 0.001) indicates that there is additional variability in student scores that is not explained by the fixed and random effects. With the unconditional model, there is statistically significant variation in intercepts across classrooms, suggesting that student engagement varies significantly across classrooms, with a significant within- and between-classroom variance to be explained.

**Effect of academic achievement on student engagement**

The effect of academic achievement on student engagement varies significantly across the classrooms within differentiated higher education system (Coeff = 0.51, t = 2.87, p < 0.001). The addition of a predictor at model 1, student academic achievement, yields a statistically significant difference in the effects of academic achievement on student engagement, supporting the second hypothesis.

**Effects of instructional quality, teacher experience, and academic qualification on student engagement**

With the full model, classroom variables such as instructional quality, teacher qualification, and teaching experience were added to the model to examine differential effects on student engagement. The variables and their intercorrelations are presented in Table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Academic achievement</td>
<td>2.93</td>
<td>0.91</td>
<td>656</td>
<td>0.019*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Teaching experience</td>
<td>8.22</td>
<td>4.41</td>
<td>61</td>
<td>0.444**</td>
<td>0.022*</td>
<td></td>
</tr>
<tr>
<td>3. Instructional quality</td>
<td>3.43</td>
<td>0.50</td>
<td>61</td>
<td>0.420**</td>
<td>0.078*</td>
<td>0.916**</td>
</tr>
<tr>
<td>4. Student engagement</td>
<td>3.45</td>
<td>0.51</td>
<td>656</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note(s):** *p < 0.05; **p < 0.01  
**Source(s):** Authors’ own work
### Table 2. Effects of student- and classroom-level factors on student engagement

<table>
<thead>
<tr>
<th>Variables</th>
<th>Null model</th>
<th>Random intercept and fixed slope model</th>
<th>Random intercepts and slopes model</th>
<th>Interaction Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff</td>
<td>SE</td>
<td>Coeff</td>
<td>SE</td>
</tr>
<tr>
<td><strong>Level 1: student level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fixed effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>69.22***</td>
<td>1.2</td>
<td>69.21***</td>
<td>1.16</td>
</tr>
<tr>
<td>Academic achievement</td>
<td>0.51**</td>
<td>0.18</td>
<td>0.16</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>Level 2: classroom level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructional quality</td>
<td></td>
<td></td>
<td>0.64***</td>
<td>0.17</td>
</tr>
<tr>
<td>Teaching experience</td>
<td>0.09**</td>
<td>0.03</td>
<td>0.09***</td>
<td>0.03</td>
</tr>
<tr>
<td>Teacher qualification</td>
<td>0.59***</td>
<td>0.20</td>
<td>0.59***</td>
<td>0.20</td>
</tr>
<tr>
<td>Academic achievement* Instructional quality</td>
<td></td>
<td></td>
<td>0.015*</td>
<td>0.006</td>
</tr>
<tr>
<td>Academic achievement*Teaching experience</td>
<td></td>
<td></td>
<td>−0.01</td>
<td>0.03</td>
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<tr>
<td>Academic achievement* Teacher qualification</td>
<td></td>
<td></td>
<td>−0.20</td>
<td>0.18</td>
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<tr>
<td><strong>Random effect (variance component)</strong></td>
<td></td>
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<td></td>
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<tr>
<td>Student level variance (residual)</td>
<td>21.16***</td>
<td>1.23</td>
<td>21.02***</td>
<td>1.22</td>
</tr>
<tr>
<td>Classroom level variance (intercept)</td>
<td>84.95***</td>
<td>15.87</td>
<td>80.36***</td>
<td>15.12</td>
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<tr>
<td>Deviance</td>
<td>4091.46</td>
<td></td>
<td>4084.95</td>
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</table>

**Note(s):** *p < 0.05; **p < 0.01; ***p < 0.001; Level 1 N = 656, Level 2 N = 61

**Source(s):** Authors’ own work
engagement. Accordingly, the variations in the effect of teaching experience on student engagement are statistically significant (Coeff = 0.09, t = 3, p < 0.01). Similarly, instructional quality (Coeff = 0.64, t = 3.7, p < 0.001) and teacher qualification (Coeff = 0.59, t = 2.95, p < 0.001) demonstrated significantly different effects on student engagement, supporting the third hypothesis.

Interaction effects of teacher and student-level variables
With model 2, the interaction effects of first- and second-level predictors were examined. The results indicated that the interactive effect of academic achievement and instructional quality on student engagement showed statistically significant differences across classrooms (Coeff = 0.015, t = 2.5, p < 0.05). As Table 2 indicates, other interaction effects, namely academic achievement with teacher qualification and teacher experience, are found to be statistically nonsignificant.

Discussion
This study hypothesized that student engagement varies across classrooms in research, applied, and comprehensive university categories. Statistically significant differences in student engagement were found among classrooms randomly selected from universities. The major finding from this multilevel analysis is that between-classroom differences still account for 80% of the variance in student engagement while adjusting for the effect of student academic achievement. This finding is consistent with the findings from others. Fullarton (2002), who conducted a multivariate, multilevel investigation of the role of schools and the influence of individual-level factors on student engagement and found that between-school differences account for almost 9% of the variation in students engagement levels. Using multilevel modeling, student-level autonomous motivation, controlled motivation, perceived self-efficacy, and classroom-level perceived teaching quality influenced university students’ behavioral engagement in the context of flipped classrooms (Lai et al., 2021). In Ethiopian context, a multilevel study reported that students’ academic achievement in mathematics and English varied significantly within and across junior, secondary and preparatory schools (Ebrahim and Dagnaw, 2015). In higher education context, engagement influenced inclusion of students with disabilities in some public institutions (Abera et al., 2020). In some private higher education institutions, students are not found to be engaged (Mekonnen, 2007).

In this study, it was hypothesized that academic achievement would be related to student engagement, which is supported by the findings. Student academic achievement as a level one predictor significantly predicted student engagement. This is consistent with the finding in other settings, which stated that student engagement was directly associated with academic achievement and operated as an intervening factor (Konold et al., 2018). This finding is also consistent with findings from other studies (Delfino, 2019; Tomaszewski et al., 2023) where student engagement is conceptualized as a three-dimensional construct, namely cognitive, affective, and behavioral, and analyzed using multivariable linear regression. This suggests that multi-dimensional student engagement continues to be recognized as a critical factor in student learning and achievement. Academic achievement, in many contexts, is related to four-dimensional student engagement.

The study hypothesized that the interaction effect of academic achievement with teaching experience, instructional quality, and teacher qualification would be significant. It was found that only the interactive effect of instructional quality and academic achievement on student engagement provided a significant result. This is in line with findings that instructional quality indicators are rather dependent on the institutional environment (Devlin et al., 2009). On the contrary, the interaction effect of teacher qualification and teaching experience with academic achievement did not yield a significant effect on student engagement, so the
hypothesis is not supported. This finding, may be due to the limitation to exhaust institutional factors, is inconsistent with the assertion that student engagement is a function of interaction between student factors and institutional factors represented as “educational interface” (Kahu and Nelson, 2018). The interface metaphor provides a new ontological perspective for institutions to frame student engagement as a function of constantly changing interactions between students and their institutions particularly with teachers, learning activities and the learning environments.

Finally, this study also hypothesized that, due to differentiation, the effects of academic achievement, teacher qualification, and teaching practice could vary significantly. Consequently, classrooms appear to show significant differences in the effects of academic achievement, teaching experience, instructional quality, and teacher qualification on student engagement. This may suggest that the specific missions these differentiated institutions pursue might lead to different ways and patterns of engagement. This is consistent with other findings that the four dimensions of student engagement are important determinant of institutional reputation (Bowden et al., 2021). In Ethiopian higher education context, research universities, being at the top of vertical differentiation, have received more prestige than applied and comprehensive universities. Accordingly, this finding supports the argument that teaching and learning are affected by institutional differences, challenging the traditional notion that engagement is identical across contexts and discourses in various learning innovations and learning theories (Kezar and Kinzie, 2006).

Conclusion
This study investigated the pattern of effects of academic achievement as a student-level variable and instructional quality, teacher qualification, and teacher experience as institutional-level variables on engagement in higher education context in Ethiopia. A major contribution of this study is that the effects of classroom variables on student engagement are unique to research, applied, and comprehensive universities. Consequently, the effects of academic achievement (at the student level), teacher experience, instructional quality and teacher qualification (at classroom level) varied across classrooms in differentiated higher education system. Additionally, the interaction effects of academic achievement and instructional quality showed significant variation in these types of universities. The evidence also indicates that classroom variations are significant, suggesting the institutions hosting these classrooms are different. With multilevel modeling, the result suggests that classrooms significantly vary, which implies that student engagement strategies adopted by institutions may be unique to their environment.

The results of this study suggest policy, theoretical, practical, and pedagogical implications. With policy, universities in differentiated higher education subsystem could integrate different strategies of engagement into their student policies to realize their specific institutional missions at the same time student outcomes. Engagement has become an indicator of efficiency from the student perspective as much as differentiation is from the policy perspective. Practically, universities should specify policies and practices to enhance student engagement unique to their learning environment. Theoretically, engagement should go beyond conceptions of cognitive, affective, and behavioral outcomes to the representation of student voices in governance. Pedagogically, teachers and students could align classroom interaction with engagement strategies that empower students to take responsibilities for their own learning.

Limitations
The generalizability of the findings of this study may be limited by the use of self-report questionnaires including students’ grade point averages and by the particular participant
sample of students and teachers. Future research may sample universities to enable hierarchical linear modeling and include student, classroom, and institutional variables and their interaction.

References


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