Involvement with Response Technology as Student-Centring of Language Teaching

Upper-Secondary Student and Teacher Experiences

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Abstract

Response technology (RT) is frequently applied to engage students in education, but research on RT has only perfunctorily studied student involvement in decision-making in secondary education. Because such research is also scarce in language learning, this study aimed to identify and examine how students and teachers experience student-centring of language teaching through RT-mediated involvement. A qualitative-dominant, mixed-methods case study design provided data through observations, interviews, and surveys, which was analysed through constant comparative coding and categorisation, descriptive statistics, and analytic abduction. This identified two forms of involvement—active and passive—which entered into a dynamic, student-centring, relationship-guiding practice, and between which teachers' and students' decision-making roles varied. By combining RT and involvement, this study provides an introduction to an area of research which may further unlock the potential of RT for student-centring of education.

Keywords
Involvement, Response technology, ICT, Language Teaching

Introduction

Response technology (RT) has a pervasive presence in modern education, where teachers use it to involve students in lessons. In existence since the 1960s, but rising to didactic and academic prominence in the 2000s (Abrahamson, 2006; Caldwell 2007), RT provides an additional communication channel inside or outside the classroom. Students can make contributions—often anonymously—through their smartphones, tablets, or computers, and teachers can receive and react to a real-time, comprehensive, and accurate snapshot of the class. Research into the application of these tools reports beneficial effects for dimensions such as engagement (Blasco-Arcas, Buil, Hernández-Ortega, & Sese, 2013; Henrie, Halverson, & Graham, 2015), motivation (Hunsu, Adesope, & Bayly, 2016), participation, and learning (Stowell & Nelson, 2007), most often as a result of expanded communicative capabilities compared to traditional teaching (Keough, 2012).

Although RT use by teachers and students in language classrooms has resulted in a small corpus on reported practices, little research looks at RT in language education (Kay & Lesage, 2009; Habel & Stubbs, 2014). Furthermore, Penuel, Boscardin, Masyn, and Crawford

(2006), Kay and Knaack (2009), and Ludvigsen, Krumsvik, and Furnes (2015) remain the only comprehensive studies of RT in lower-education settings. Because RT's focus—communication—is both a means and an aim in language subjects (Savignon & Berns, 1987), there is a need to unlock RT's potential with research into the attitudes and perceptions which motivate and guide its use in language teaching in lower education. Such research may steer the field towards methods of application and best practices in this context.

Taking a mixed-methods approach to teacher and student attitudes towards applied RT in language teaching at a Norwegian upper-secondary school, this case study attempts to answer the research question, *How do upper-secondary education language students and teachers perceive student-centring through involvement in the application of response technology?* The findings of this study, arrived at through an exploratory approach to applied RT including observations, interviews, and surveys, highlight the relevance and potential of research into applied RT in general, and into involvement through RT in particular.

Background

Response technology

RT in an educational setting uses digital tools allowing students to communicate in the classroom through internet-connected devices (Abrahamson, 2006; Caldwell, 2007). In the context of this project, RT is not simply hardware, although its origins in separately produced hardware units known as "clickers" still lead many to think of it in this way. However, modern RT uses all available devices, often through "bring your own device" (BYOD) policies—as well as a plethora of web-based software (Caldwell, 2007; Beatty & Gerace, 2009)—to facilitate communication between a group and an instructor, often condensing that communication to allow immediate and targeted responses. Due to a lack of uniform nomenclature (Fies & Marshall, 2006; Kay & LeSage, 2009), this study will refer to these systems as "response technology" (RT). Research by Roschelle, Penuel, and Abrahamson (2004) and Beatty and Gerace (2009) focus on a practical rather than theoretical orientation. However, a generative theory of learning can be discerned through the literature's constructivist and behaviourist focus on RT's affordances for student activity as well as its orientation towards student engagement, participation, motivation, and learning (Hunsu, Adesope, & Bayly, 2016; Landrum, 2015).

Internationally, research on applied RT in education focuses almost exclusively on higher education in STEM, economics, and medicine, with limited studies in primary and secondary education and other disciplines (Kay & LeSage, 2009). Several positive effects of RT have been shown by Arnesen, Korpås, Hennissen, and Stav (2013), Keough (2012), and Egelandsdal and Krumsvik (2017). In the search for best practices, research has found engagement in the form of involvement and participation aided by anonymity to be conducive to student-centring of education, promoting student learning and motivation (Roschelle, Penuel, & Abrahamson, 2004; Aljaloud et al., 2015). Communicative, interactive, and student-active environments—commonly promoted in language education (Bruner, 1981; Meyers & Jones, 1993)—were reported by Mazur (1997) and Bruff (2009) as indicators of successful RT application. However, despite this and frequent calls for diversification in disciplines and education levels (Simpson & Oliver, 2007; Kay & LeSage, 2009), Bruff (2014) indicated such diversification has been limited in extent.

In Norway, research remains sparse. Bjørkli (2014), Arnesen et al. (2013), and Wang (2015) argue that frequent use promotes learning, and Wang cites changed classroom dynamics as a possible cause. Similarly, Ludvigsen et al. (2015) and Egelandsdal and

Krumsvik (2017) found learning benefits from application of RT in conjunction with peer discussions and self-assessment. Furthermore, Ludvigsen et al. (2015) is among the few studies exploring student attitudes towards applied RT through a significant portion of qualitative data; this allowed them to suggest increased involvement for students, due to "real feedback dialogues" made possible by RT altering communicative dynamics in lectures. While these studies represent the core of Norwegian research, they were conducted on relatively small samples of STEM or psychology students in higher education, and in general discuss involvement only tangentially to learning. To date, few studies have been conducted on applied RT in primary and secondary education language teaching in Norway.

Involvement

The literature shows a general consensus that involvement and engagement are related, and that RT fosters engagement (Boscardin & Penuel, 2012; Blasco-Arcas et al., 2013). However, a uniform understanding of the terms and their relationship remains elusive (Blasco-Arcas et al., 2013; Henrie et al., 2015). This is likely due to two seminal works that present the terms differently. Astin defined involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1999, p. 518), and included a variety of behavioural terms—amongst them "engage in"—as hyponyms (see Fig. 1). Later, Fredricks, Blumenfeld, and Paris (2004) represented engagement as consisting of cognitive, behavioural, and emotional dimensions. As these are similar to involvement, participation, and affect/motivation, and different studies rely on different predecessors (e.g., Kay & Knaack (2009) and Trowler (2010)), the exact nature of and relationship between the terms is unclear.
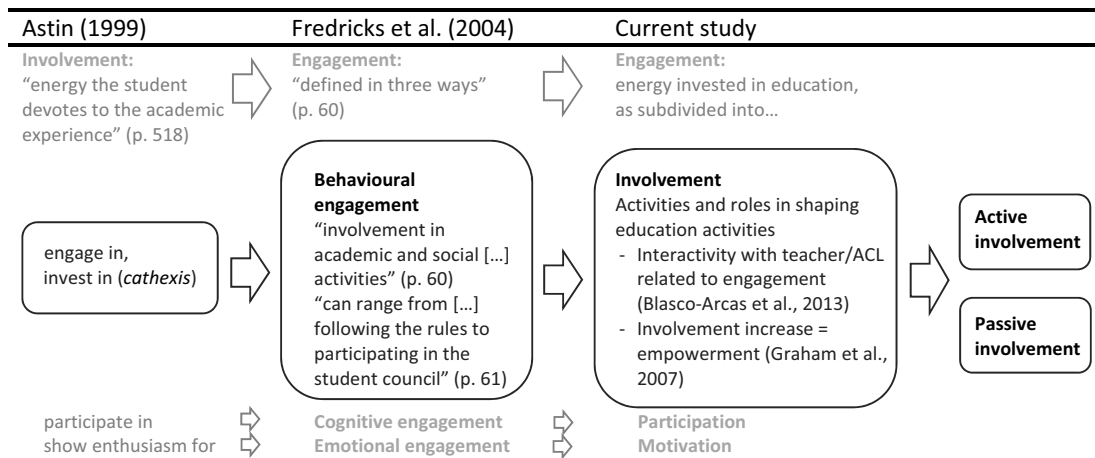

Figure 1 Involvement in the literature and the current study

This study recognises Astin's definition as widely applied to engagement in the literature, and therefore uses involvement as synonymous with Fredricks et al.'s behavioural dimension in line with Astin's engagement/investment. From a student-centring point of view, this means involvement is students' activities and role in shaping and directing education activities. This definition further resonates with Blasco-Arcas et al.'s identification of an intersection of "engagement", "interactivity with the teacher", and "active collaborative learning" (ACL), and with Graham, Tripp, Seawright and Joeckel's (2007) understanding of an increase in involvement as "empowerment". Taking a cue from Blasco-Arcas et al., this study distinguishes between active and passive involvement; in the former, the involved

party actively makes decisions in the classroom, while in the latter, the involved party provides the background upon which decisions are made. Figure 1 situates these terms within existing terminology.

The literature suggests that interaction with RT promotes student-centring by promoting involvement, yet calls for research on this dimension. Graham et al. (2007) point out that empowering students—making it easier to participate and to evaluate their own performance—is preferable to forcing student participation; students welcome the opportunity to choose or not to choose to influence the lesson. Trees and Jackson (2007) echo this, arguing that students' sense of expediency, relevance for their learning activities, and expected usefulness of feedback determine their involvement. They are aware of the commitment which accompanies involvement, something Bruff (2009) and Bachman and Bachman (2011) term academic responsibility and accountability. Laxman (2011) and Egelandsdal and Krumsvik (2017) found that students reacting to replies and follow-up led primarily to engagement in the form of participation, but also made them more involved in directing one another's learning and the learning in class. Furthermore, Ludvigsen et al. (2015) and Dong et al (2017) found the teacher's willingness to heed students' input was crucial to student learning and involvement, but echoed Henrie et al.'s (2015) notion of limitations, calling for further research into involvement with applied RT.

Methods

This study took a postphenomenological approach to the research question, using observations, interviews and surveys in a mixed methods design to explore participant experiences with applied RT in language education (Merriam 1998; Johnson & Onwuegbuzie, 2004; van Manen, 2016). Technoscience postphenomenology (Ihde, 1990) combines a focus on users' experience of the world with attention to how this experience is mediated by technology (Verbeek, 2016). In order to access these experiences, a multiphase mixed-methods case study design, using both qualitative and quantitative methods of data collection and analysis, was applied to construct theory through three phases (Merriam 1998; Johnson & Onwuegbuzie, 2004; Creswell, 2014). The qualitative, initial phase (P1: Aug. 2016 to May 2017) and its quantitative, calibrating phase (P2: April-May 2017) formed a sequential exploratory design where findings from P1 were tested against the larger sample of P2 (Creswell, 2014). The coordinated findings from these informed the third, qualitative intervention phase (P3: Aug. 2017-Dec. 2017), which sequentially tested these findings through analytic abduction and added a final, sequential explanatory/exploratory qualitative phase to the overall case study (Creswell, 2014). Table 1 illustrates data interconnectivity from the three phases.

Table 1 Illustration of interaction within the mixed-methods case study

Category: Active involvement				
P1 Observation	P1 Interview	P2 Survey	P3 Observation	P3 Interview
Ms. Gregson, 17.01.2017, 2GS, Spanish Vote 1: (Should we practice translation from Spanish to Norwegian or vice versa?) – Majority for the latter. Memo: A semblance of democracy.	Kirsti, Alma, Ronja, Anna, 07.03.2017 Interviewer: Do you feel you get to influence what you do and how you do it? Anna: We could possibly have been given more opportunities to influence [the lessons]. It would have been easier for people to say what they needed if they had the opportunity, in a way.	Q16 "It is important to me to influence content and methods in the lessons" Q19 "Response technology makes it easier for me to tell the teacher how I want to work" Q20 "Response technology makes it easier for me to tell the teacher what I want to work with"	Ms. Travers, 29.08.2017, 1GS, English Vote 2: (What should be included in a text about New Zealand?) Student text responses: Maori, rugby, Wellington, spiders, sheep, zipline, James Cook, dance, Kiwi-bird	Aurora, Runa, Eirik, Chris, 14.12.2017 Interviewer: Would you like to decide how to work, or would you like [the teacher] to decide? Chris: It's a bit of both, really. Runa: She knows a bit better what we need to practice, so then she can […] adapt it.

In language teacher Ms. Gregson's Spanish class, active involvement was observed when students were invited to actively decide how to proceed, and four students were subsequently interviewed about their experiences with such involvement. Based on P1 analysis, the P2 survey items Q16, 19, and 20 were formulated to gauge the experiences of a larger and more diverse sample. The coordinated findings informed the P3 intervention, where other observations in Ms. Travers's English class and student interviews refined the category of active involvement and allowed theory formulation.

Participants

The sampling for the project was closely tied to each phase, but all informants were sampled from the same time period, environment, and context—three terms at a Norwegian upper-secondary school—thus constituting a bounded system (Plano Clark & Creswell, 2015). Student groups were drawn from both general (GS) and vocational (VS) study programmes, though the school subjects in focus remained the same, as these were taught across study programmes.[1] All data collection, analysis, and storage were approved by the Norwegian Social Science Data Service (NSD) and complied with NSD ethical standards. Participation was voluntary, participants were informed verbally and in writing before data collection, and their names were replaced with pseudonyms in the analysis.

The sample population for P1 was chosen by purposeful snowball or chain sampling (Merriam, 2009; Patton, 2002). Based on their willingness to participate, 18 teachers of vocational and general subjects (including 12 language teachers[2]), and their classes, were progressively involved. In P2, the effective sample of 591 students (49.6% VS, 50.4% GS)

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1. For the purposes of this article, general studies (GS) is understood as the study programme consisting exclusively of core common subjects. Vocational studies (VS) is understood as any study programme with a combination of core common subjects and programme subjects. This is somewhat in conflict with the re-classification of study programmes from autumn 2016 (Norwegian Directorate for Education and Training. (n.d.). Finn utdanningsprogram. Retrieved March 15, 2018, from https://www.udir.no/laring-og-trivsel/lareplanverket/utdanningsprogram/)
2. The choice of including non-language teachers in P1 was partially a reflection of the research field, in which findings from established research in non-language subjects informs research on language subjects, and partially in recognition of the generalisability of student-centred RT didactics.

and 26 language teachers was arrived at by purposeful maximum variation sampling (Merriam, 2009). Teachers and students who had given or received language education and who might have been exposed to RT constituted the entirety of attending participants, which allowed for a wider understanding of the experiences from P1. Finally, three teacher informants, one third-language class (VS/GS), two second-language classes (VS/GS), and two native-language classes (VS/GS) formed the P3 sample. Teacher and class characteristics were monitored during the first-year execution of P1 and P2, which combined with emerging categories to inform theoretical sampling for P3. Eligibility also depended on the P1 activity of teachers, to provide relatively constant implementation of RT approaches throughout the data gathering period.

Data collection

During the two qualitative phases, data was gathered through observations and interviews. Acting as a "observer participant" (Merriam, 2009; Creswell, 2014), I recorded observations through field notes with descriptive and reflective components (Plano Clark & Creswell, 2015; Saldaña, 2009). The actions and reactions of informants were described, my immediate interpretations recorded alongside these, and analytic memos added post-observation. This observation data provided the basis for 39 interviews in P1 and 25 in P3. These interviews ranged from brief, unstructured, or open-ended field interviews of a few minutes (P1n=34, P3n=20) to long to semi-structured interviews of up to two hours (P1n=5, P3n=5) with interview guides piloted with teachers and students. The former type provided insights into teacher and student attitudes, reflections around past or future classroom experiences, and the situation of language and/or RT teaching in general. The semi-structured interviews allowed for deeper discussions of emerging issues from the observations and unstructured interviews. P1 interviews gathered interviewees' experiences with themes such as ICT- and RT-mediated teaching, teacher and student roles, and anonymity, involvement, participation, motivation, and learning. In P3 interviews, conducted after the P3 intervention, experiences from the intervention were discussed in relation to expectations, the themes from P1 interviews were re-examined, and informants were invited to evaluate the intervention. All interviews followed the seven stages of interviewing as formulated by Kvale and Brinkmann (2015), adjusted to the characteristics of their type.

The findings from P1 observations and interviews formed the basis for two cross-sectional surveys in P2. Following a biographical and frequency-of-use section, teachers and students were asked to express their perceptions of student anonymity, participation, involvement, motivation, and learning facilitation with applied RT in language education. They did this by responding to statements on these topics through Likert scales, which ranged from strongly disagree to strongly agree. P1 informants, colleagues within education research, an external expert in quantitative methods, and an external focus group of students were consulted to ensure the quality of the questions (see Timperley, 2008; McTaggart, 1997). Immediately following P1—to reduce the impact of variables and administered on paper to avoid storage on external servers—the surveys followed a retrospective, non-experimental correlational case study design (Shadish, Cook, & Campbell, 2002). The surveys were identical, with the exception of phrasing (students: "I am…", teachers: "The students are…") and a reduction of biographical options for the smaller teacher sample to preserve anonymity. This allowed for comparisons between teachers and students.

Analysis

In P1 analysis, both field notes and recorded interviews/interview transcripts were subjected to a coding process using the constant comparative method, which also involved writing analytic memos (Saldaña, 2009; Fram, 2013). Field notes and interview recordings were imported into and transcribed in the CAQDAS software NVivo 11, and subsequently underwent a coding and categorisation process. The interviews—conducted in the informants' native language, Norwegian—were transcribed and analysed in that language, and key passages were translated into English for publication. Both field notes and interviews underwent "initial coding" (breaking down qualitative data into discrete parts, as described by Saldaña (2009) and formerly called "open coding"), but in combination with different coding methods.[3]

The field notes and interviews were initially subjected to provisional coding, according to a list generated from the research question. In first-cycle coding, the field notes were subjected to attribute, descriptive, and simultaneous coding for data management, providing a detailed inventory of data interconnectivity (Saldaña, 2009). The attributes and structures, similarities, differences, frequency, sequence, and correspondence arrived at through this coding were paramount, as they provided the basis for the later interviews, surveys, and intervention. The interviewees' role in shaping the discourse of interviews warranted less grammatical methods and more elemental and exploratory methods. Hence, holistic, invivo, and process coding were applied in pursuit of approaches to student-centred education as actions, attitudes, and conditions, as sanctioned by the study's design (Saldaña, 2009). In second-cycle coding, categories were formed based on focused coding of both observation and interview codes (see Fig. 2). Data with similar first-cycle codes were grouped together under a tentative category name in an abductive and alembic process of organisation and reorganisation until data saturation was achieved (Saldaña, 2009). In other words, by repeatedly revisiting previous levels of analysis, second-cycle categories were re-negotiated, focused and refined until they qualified as the most likely explanation for the data and codes they encompassed (Peirce, 1955; Schurz, 2008; Fram, 2013).

For the survey data from P2, IBM SPSS Statistics 24 and descriptive statistics were used to analyse the attitudes of the teacher and student groups. Because no distinction was made in the treatment of groups, the analysis of similarities and differences provided a non-experimental expression of informants' perceptions. The biographical section of the survey was used to identify groups, and the frequency-of-use section was kept apart from the attitude section in the analysis, though subjected to the same level of analysis and comparison. Comparisons were made based on distribution means and significant Spearman's ρ correlations bolstered by Student T-tests administered for intersections of particular relevance or interest.

P3 analysis attempted to formulate theories through analytic abduction. P3 interview and field observation data was compared with P2 findings and P1 categories to see if it could be coded into these. If not, constant comparative analysis of new data for comparison, adjustment, and/or expansion of categories was performed. Theory formulation was then undertaken upon theoretical saturation of the categories, whereupon categories were organised through ordering and reordering and diagramming, and theory was formulated in rich, thick description (Saldaña, 2009; Merriam, 2009). Validity of findings was ensured through member checking (Creswell, 2014) and triangulation through analytic abduction (Schurz, 2008)

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3. For detailed descriptions and discussions of these methods, see Saldaña (2009). For a discussion of constant comparison outside of Grounded Theory, see Fram (2013).

Figure 2 NVivo 11 screenshot: Coding visualisation

Results and discussion

From the data, a complex understanding of involvement emerges in which involvement is central to student-centring of language education with RT. Besides students actively making decisions regarding execution of education through active involvement, passive involvement also appears to be central. Here, the teacher plays the active part by interpreting student responses to teaching and letting that inform further teaching. RT serves to let the teacher know which content students prefer or which work method they would like to apply, but it also serves to define the content itself or to let the teacher know students' status and needs, allowing the teacher to adapt lessons accordingly. Furthermore, findings suggest the collaborative aspect of both types of involvement—as well as the educational value in letting one inform the other—are important to teachers and students involved in RT-mediated upper-secondary education language teaching.

In the surveys, teachers echoed student attitudes throughout, making student attitudes indicative for both groups (see Table 2). Involvement (Q16-21) was considered more central to the application of RT to language education than participation, motivation, and learning facilitation. The means of all questions in the involvement section, both for students (M_{si} =3.62, SD_{si}=.76) and teachers (M_{ti} =3.90, SD_{ti}=.64), exceeded those of the other sections sections, ($M_{sx} \in$ [3.44 (SD=.57),3.62 (SD=.76)], $M_{tx} \in$ [3.59 (SD=.53),3.90 (SD=.64)]). While only negligible correlations (ρ<.3) were found between the variables and gender or study programme for the students, the involvement variables were uniformly in favour of female students, indicating they are somewhat more preoccupied with involvement than male students. The highest significant correlations were found between variables Q19 and Q20, indicating that content and work methods are equally important in active involvement (ρ_s=.826, ρ_t=.904, both p<0.000)[4]. This pair further enters into a strong system of coherence with Q17 and Q18, indicating the connectedness of active and passive involvement, particularly because Q18—a variable measuring attitudes towards the latter—has the highest mean in the section. The involvement variables correlate well to motivation variable Q13 and learning facilitation variable Q26. This indicates students (and teachers) perceive involvement as connected to motivation for language learning and that the teacher's response to student contributions is seen as an element of involvement.

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4. Equal variances assumed throughout.

Table 2 Key quantitative data from student responses (Spearman's ρ)

	Q6	Q16	Q17	Q18	Q19	Q20	Q21	Q13	Q26	Q12
	Frequency of use in languages	M/SD: 3.71/ 0.976	M/SD: 3.72/ 1.019	M/SD: 3.77/ 0.938	M/SD: 3.65/ 0.998	M/SD: 3.68/ 0.984	M/SD: 3.19/ 1.107	M/SD: 3.42/ 1.034	M/SD: 3.47/ 0.827	M/SD: 4.09/ 0.986
Q1: Gender (Female/ male:1,2)	−0.021 (p<0.613)	−.118 (p<0.004)	−.185	−.097 (p<0.018)	−.152	−.146	−0.05 (p<0.227)	−0.011 (p<0.783)	0.025 (p<0.545)	−.194
Q4: Study program (GS,VS:1,2)	−.186 (p<0.038	0.020 (p<0.628)	−0.041 (p<0.318)	0.004 (p<0.926)	0.007 (p<0.872)	−0.019 (p<0.646)	.094 (p<0.023)	0.053 (p<0.198)	0.019 (p<0.642)	−.134 (p<0.001)
Q16: It is important to me to influence content and methods in the lessons.		1	.360	.303	.299	.333	.258	.246	.249	.246
Q17: RT makes it easier to tell the teacher what I find difficult, e.g., through votes.		.360	1	.654	.642	.625	.473	.423	.389	.386
Q18: RT makes it easier for the teacher to find out what I need to work on.		.303	.654	1	.671	.617	.485	.375	.451	.334
Q19: RT makes it easier to tell the teacher how I want to work.		.299	.642	.671	1	.826	.569	.417	.456	.350
Q20: RT makes it easier to tell the teacher what I want to work with.		.333	.625	.617	.826	1	.550	.419	.425	.355
Q21: RT makes it easier to tell the teacher how I react emotionally to the teaching.		.258	.473	.485	.569	.550	1	.355	.386	.175
Q13: Using RT can make me want to work more in language lessons.		.246	.423	.375	.417	.419	.355	1	.344	.236
Q26: Teacher feedback on RT questions can help me with what I am working on.		.249	.389	.451	.456	.425	.386	.344	1	.279
Q12: If the teacher asks us to vote for what we find difficult, and we can be anonymous, I will do so.		.246	.386	.334	.350	.355	.175	.236	.279	1

p<.000 (2-tailed) unless otherwise indicated

Passive involvement

In our context, Trees and Jackson's (2007) link between the teacher's pedagogical commitment to student contributions and involvement was identified as passive involvement, succinctly exemplified by Mr. Malvern's social science lesson with his firstyear GS students. Mr. Malvern—who was also that class's native language teacher and therefore pursued the learning goals of both subjects—wanted students to practice discussing and writing argumentative texts. After students read a short text, they were asked to anonymously identify

their position on a five-point Likert scale in Google Docs. Then, noting that the distribution was skewed to one side, Mr. Malvern invited them to prepare for a discussion by submitting two sentences explaining their position. After this and a brief discussion of some of the contributions, students were asked to submit arguments for and against, using previous submissions as support. During this lesson, students were not asked directly how they would prefer to work or which content they would like to work with. Mr. Malvern used their contributions and their attitudes to help them learn how to approach argumentative writing. Here, RT was applied to allow many students to contribute the material which the teacher might otherwise have had to provide himself. This made students, rather than just the teacher, a central influence on the process. Numerous cases of such passive involvement were found in observations and throughout the interviews, such as with the language teachers Mr. Todd and Ms. Gregson, and the students Anna and Kirsti:

> And then they have to be able to write a vocationally evaluating text. What is a vocational evaluation? Then we have to discuss that with them. What is a vocational evaluation for you, when you are in the workshop and are about to do something which is hard and demanding. What is it, in fact, what is it that makes it vocational and what is it that we can't write when we write vocational evaluations? (Mr. Todd)

> We used the text function to write a research question for the theme "The British Royal Family". […] We had to discuss the difference between theme and research question, but then we went through and evaluated their research questions. Some were too wide, some too narrow and some too unclear. (Ms. Gregson, paraphrased)

> And when we started [the process], I took a student who had written a bit, and it was quite well written, and I put it up on the projector, because then everybody could see what I could see. (Ms. Gregson)

> Anna: [The teacher can] find out what people know and not, too. Help us with what we do not know.

> Kirsti: And you see […] that others are failing, so you dare to try. You're not alone.

In addition to indicative student contributions to be diagnostically taken into consideration by teachers, both students and teachers indicated the evaluative level of communication afforded by RT was crucial for passive involvement. In fact, in the survey (See Table 2, Q12), students particularly emphasised being able to provide metacognitive comments on their own work, their own processes, and their own attitudes and concerns. However, the neutral score on Q21 indicated that students, by commenting on such matters, aim more to have lessons adapted to them than to actively influence them. In other words, students' primary aim with meta-comments is to receive aid or praise; they had only a secondary interest in exercising active, executive influence, preferring the teacher to make the decision to follow up on their comments. In the observation data, there was a proliferation of anonymous, metacognitive comments such as "I don't understand anything" and "I am enjoying this (good teacher)". This suggested that, when unable or unwilling to answer the question, students nevertheless provided evaluative comments, hoping to inform the teacher of their needs and opinions. This combines with the quantitative data to paint a nuanced picture of student involvement. It ranges from merely wanting to actively decide content and work methods to making their sentiments and preferences known for the teacher's consideration. While identifiable as passive involvement in this study, the relevance of such findings for other elements of Astin's (1999) "involvement" and Fredricks et al.'s (2005) "engagement" invites further research into the wider ramifications of both findings and passive involvement.

Active involvement

Observation data show students as willing participants in active involvement, which confirms data from the survey, because they seem equally positive to defining work methods and content themselves. This is evidenced by amongst others Ms. Travers's English lesson in first-year GS. Ms. Travers—in preparation for a project on English-speaking countries—asked students to brainstorm about a selection of countries through the text function in the RT iLike. This provided a list of pointers which were screened by Ms. Travers, and then provided a basis for students' subsequent process. Students then made plans for how to apply this data to their projects. As suggested by Trees and Jackson (2007), the high participation on the requests (n=10, mean participation=64%) and the long lists they produced indicate that students appreciate being involved in this definition process and also see its relevance for the upcoming procedure as long as the teacher makes clear the motivation for such invitations to involvement.

Interview data provides further insight into the dynamics of active involvement. Both teachers and students prefer active involvement to appear in a collaborative negotiation, rather than the teacher deciding content and work method or providing students with carte blanche, that is, relinquishing all influence. The same interviews suggest the preference for collaboration is aided by the concurrent sharing of responsibility for the process and product. This serves either to avoid potential blame for a failure or to promote perceived positive effects of involvement for either of the collaborating parts. Such effects can include increased student competence in language or choice or work methods as promoted by teachers, or the inclusion of the teacher's expertise and subsequent responsibility for the process and product, as indicated by students.

Active involvement through collaboration generally consists of the teacher providing a menu of topics and/or work methods, and the students expressing which they prefer. Alternatively, the students respond to the teacher's request with possible topics or work methods from which the teacher chooses. The language teacher Mr. Corcoran gives an example of the former:

> […] what's important to do, so that students consider themselves involved, is to provide, for example, three or four alternatives. OK, who wants to take that one? We have, for instance, had some projects about music on VG2 [second year]. And then we came up with four suggestions, which were; you can choose between making a Kahoot – those who want to, in groups, make a Kahoot about music, and in dance – there were two groups who found a dance from Latin America which they danced in front of the others, and it was the third which was "beat for beat" – to sing in front of the others and choose two three songs and make a small sketch like [a game show]. And some chose the one, someone chose the other, and then they have influence, right? They can choose. (Mr. Corcoran)

Mr. Corcoran expresses a common desire with language teachers to provide students with the power to define their own processes, not only in the choice of general topic, but also in content specialisation. Students also request more active involvement, and specify conditions which help them get involved. They need to be asked about their preferences as directly and clearly as possible, be allowed to respond anonymously, and be heard. Ludvigsen et al.'s (2015) conclusions on feedback dialogues as conducive to involvement are relevant here, as the evaluation and consequence of the students' active involvement is considered important by teachers and students. The students Anna, Alma, and Ronja exemplify the need for active involvement:

> Anna: We could possibly have been given more opportunities to influence [the lessons]. It would have been easier for people to say what they needed if they had the opportunity, in a way.

Alma: That the teacher tells [us] about the possibilities and...

[...]

Alma: Those kinds of surveys and so on, yes.

Ronja: Just hands out a sheet and "write what you want more and less of". Or on itslearning [an LMS] or something.

Alma: Yes, because it is also anonymous as well.

[...]

Anna: And who you are, what you need help with, what you want to work with – there is so much that plays a role. It is because of this that it is important for the teachers to check. It should maybe be adapted more to each person, I think.

Integration of passive and active involvement

Observation and interview data from Ms. Travers's English lesson with her first-year GS students show the benefit of integrating passive and active involvement in a lesson. She started a lesson halfway through a project by specifically requesting metacognitive comments with a list of questions about the work process and its challenges. Hoping to encourage students' passive involvement, Ms. Travers explained, "[We] only got to do the first question [How is the work going?], because the students wrote everything in that vote, and we needed to do a lot of follow up from that." Anonymous student replies included:

It's going good, but we haven't had much time working on it because we have had so many other things to work on.

It's going very well. But the frames for the presentation are a little unclear.

Not good, we need more time.

It is not going so well, it's hard to get started and know how much you are going to write about each topic.

Ms. Travers continued, "I had to spend some time clarifying formats and structure. [… I also] looked at how to use the time we had efficiently […] I asked if they had a clear plan for their further work, and they responded 50-50, [yes and no]. When I went around in the classroom afterwards, the students said, 'It was I who said that... but now I think it's clear.'" Here, Ms. Travers was interested in how the students were coping with their projects, for which they had been given defining power over content and the work method. A planned application of meta-questions showed that approximately half the students evaluated their process as successful. The remaining students had methodological concerns and were eager to discuss their requests and suggestions, and to hear Ms. Travers's responses. Student involvement was requested on the meta level, and the outcome as received through RT was immediately used to help students make their own content and work method choices. Ms. Travers applied RT to first promote passive involvement with a validation orientation. She wanted to give students the opportunity to provide material which she could validate and respond to. This allowed her to assist students' efforts to exercise active involvement.

Through Ms. Travers's feedback, they were equipped to respond to challenges in their own chosen content and work method and decide how to proceed. Graham et al.'s (2007) notion of "empowerment" through RT is here exemplified and framed as passive and active involvement. The teacher can use the former to give students the tools to exercise the latter.

In language education, there is therefore an observable interaction between involvement in deciding content and work methods, and involvement through meta-comments on these, where the latter can moderate and inform the former. The results suggest that the collaborative involvement of students and teachers through RT-mediated exchange of meta-questions and meta-comments can positively influence students' involvement in deciding content and work methods. The relevance of passive, validation-oriented involvement for active, production-oriented involvement is further supported by quantitative data. Some of the highest significant correlations in the students' and teachers' surveys are between items regarding involvement in deciding content and work methods, and giving meta-comments (Q19-21; ρ_s=[.550,.826], ρ_t=[.505,.904]). In this sense, these findings concentrate and amplify Ludvigsen et al.'s (2015) suggestions of the dialogical aspects of feedback as conducive to involvement.

Roles and workloads

Laxman (2011) and Dong et al.'s (2017) caveat that involvement is contingent on teacher direction and reaction is echoed by teachers and students. Students consider the initiative for involvement to lie with the teacher, as Anna and Alma's comments above illustrate. They consider it the teacher's responsibility to invite and provide initial suggestions in these decision-making processes. Furthermore, students expect the teacher to be a controlling authority, and provide a stamp of approval on their contributions, guided by theory. There seems to be a consensus between teachers and students about this aspect of the teacher role, expressed by amongst others Ronja and echoed by teachers: "It's good [that the teacher shows] us what's right and what's wrong. Like trying to add a reason why … I mean 'he wrote like that because he maybe thought like this, but it is maybe like that'. Put it a little bit in perspective rather than 'this was all wrong' in a way."

In active involvement, student-centring requires students to actively contribute in decision making. Both students and teachers expect processes in the language classroom to involve collaborative effort. In these processes, the teacher and the student provide different competencies, but at the same decision level. In terms of involvement, this means that teachers want students to define content and work methods, justify their choices, and exercise their influence through communication with one another and the teacher. In fact, teachers largely equate involved students with procedurally active students who define their process and product, and execute and evaluate them, developing critical thinking skills and a meta-language about language and learning. This process requires students to actively involve themselves and influence it, and to be given the means to do so by a Socratic teacher enabling students to communicate their suggestions and evaluations: "That is why I like iLike [an RT], because I can see where the students are, and the students can see where they are themselves" (Ms. Gregson). Meanwhile, students want the teacher to provide confirmation or correction between their activity and language theory or the curriculum. This argues that Blasco-Arcas et al.'s (2013) findings that student interactivity with the teacher is central to engagement through collaborative learning, are also relevant to involvement in our context. The dynamics of involvement and interaction of roles, evident amongst others in Ms. Travers's project initiation above, further illustrates the relevance of RT in facilitating involvement by making such interaction possible.

Echoing the notions of commitment and accountability in the literature (Bruff, 2009; Bachman & Bachman, 2011), teachers and students are aware of the added work that comes with added involvement, which could indicate why many students seem to prefer passive involvement. Ms. Gregson explains she wants to transfer some of the workload, including decision power, onto students. The language teacher Ms. Bassett notes that "in my experience, students can become less interested in involvement as they grow older. They trade involvement for expediency. They want to be told what to think and how to work, in order to get a good grade." Though RT might facilitate involvement, active involvement might not be desirable for students who associate assessment with traditional teacher-centred learning. Quantitative data does not show that disillusion with involvement increases with age: there is no significant correlation between age and involvement. In fact, taking on the added workload of active involvement or not seems more dependent on gender than on other biographical factors such as age and study programme (see quantitative results above). However, the conflict between Ms. Bassett's perception of student attitudes towards involvement and those expressed by students in the survey might be one of attitudes in practice and in general. Students may want to influence decisions taken in the classroom in general, but if they consider letting the teacher make decisions more expedient in practice, they will do so, for example, if they prefer not to participate or require the teacher's competence. This supports Graham et al.'s (2007) conclusions for higher education: that students welcome the option to get involved, though they may choose not to. Runa's comments highlight a preference for passive influence over active, and indicate what motivates students' will to influence a lesson:

Runa: She [the teacher] knows a bit more what we need to practice, so then she can make it... adapt it.

Interviewer: So it is better if she gives you a task and sees you struggling with something, and then makes tasks to work on that?

Runa and Chris: Yes.

Concluding remarks

This case study attempted to answer the research question: *How do upper-secondary education language students and teachers perceive student-centring through involvement in the application of response technology?* In doing so, it attempted to contribute theoretically to the research field on RT didactics by crystallising the involvement dimension and situating it in educational practice. In light of limited previous research, this study further represents an empirical addition of context to the literature. Teachers and students in this study identified active and passive involvement as central to student-centring of language teaching in secondary education with RT. They showed a positive attitude towards active involvement, where work methods and content could be defined in a collaborative space mediated by RT. However, whether as a result of tradition or from a desire to avoid the responsibility inherent in making decisions, students seemed to think of involvement more as passively being taken into consideration. Recognising the teacher's competence in the subject area and familiarity with the curriculum, students preferred to collaborate by having the teacher suggest appropriate measures in response to their contributions and negotiate a plan for further progress. This suggests that a sequential combination of RT-mediated measures for passive and active involvement might help student-centring in language teaching. RT's rel-

evance for involvement in this context, therefore, appears to be its potential to ease communication and facilitate interaction based on students' participation.

The determinants suggested here for active (expediency and competence considerations) and passive (teacher reactions to contributions) involvement—while reinforcing Ludvigsen et al. (2015) and Graham et al.'s (2007) conclusions—are somewhat limited in scope. Further research is needed into what influences and results from involvement as understood here, and while Einum (2019) found RT involvement transformative for educational practices, this role needs to be studied further. Also, Astin (1999) and Fredricks et al. (2004) indicated a communality and interaction between involvement, participation, motivation, and learning, and this provides a theoretical framework in which research can expand the knowledge on RT-mediated involvement. Furthermore—considering limitations from the study's small-context approach to language education at a Norwegian upper-secondary school—the results should be tempered and refined through diversified context, contrast, and replication. The democratising affordances of RT need to be studied in more depth, to provide best practices which can be applied to promote involvement in language teaching in primary and secondary education, and beyond.

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