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Trinity College Dublin

Jobs To Be Done: Teacher Atlas

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Core Research Report

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Contents

Executive Summary

The purpose of this research was to identify how innovators, educators and researchers identify teachers' jobs to be done. The need to specifically identify teachers' jobs to be done arose from the difficulty EdTech providers face when entering the Irish K-12 market space.

Jobs to be done was first coined by Clayton Christensen following his collaboration with Tony Ulwick and the Outcome-Driven Innovation (ODI) model. The concept of "the Job" is to shift the focus to the customer rather than the product. Customers hire products, services, software, and ideas to get jobs done. In the years since, Ulwick and Christensen have found success applying their JTBD methodology; most famously in the McDonalds Milkshake. Jobs are said to be stable over time and therefore can led to a stronger identification of underserved and overserved needs, discovery of customer segments with unmet needs and help make innovation much more predictable. Therefore, it stands to reason, that Irish EdTech providers who - at least anecdotally - have yet to fully tap into the education market could benefit from a less risky approach to innovation within this market space.

A review of the literature was conducted using Google Scholar and the Trinity Library. Keywords such as "Jobs to be done of teachers" "Jobs to be done of schools" Jobs to be done in education" "The jobs of teachers" "Teachers Jobs" and more were used. Several articles' abstracts were reviewed for consideration for full review. Surprisingly, there were no scholarly articles, recent or otherwise, which provided, or alluded to, the jobs to be done of teachers. Instead, attention was turned to work published by the Christensen Institute - a non-profit research institute founded by Clay Christensen.

The Christensen institute has an extensive catalogue of educational blog posts and opinion pieces on the current educational trends in technology and innovation - which made it all the more surprising that at the time of writing no research had been done on the jobs of teachers. However, a new report published on 12th September 2018 added a first attempt to categorise the jobs of teachers. The report entitled "*The Teacher's Quest for Progress: How school leaders can motivate instructional innovation*" (2018) examined the Jobs to be Done of American K-12 educators adopting new teaching methods.

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The report puts forward four jobs for this demographic of teachers:

1. Help me lead the way in improving my school
2. Help me engage and challenge more of my students in a way that's manageable
3. Help me replace a broken instructional model so I can reach each student.
4. Help me to not fall behind on my school's new initiative

This report acts as the tentative first steps into teachers' jobs to be done. However, the results from this report need to be placed within the context of the Irish education sector as well as within the principles of academic publishing.

Firstly, this is not a peer reviewed publication. Instead, it is a report developed and written by a centre run by one of the founders of the JTBD theory, Clayton Christensen. Since the report is not of scholarly merit, the findings should be approached with caution. Indeed, no information on the ethics or methodology are provided in the report, making it difficult to ascertain the quality of the data collected. Secondly, the report is written within the context of teachers' adopting new practices i.e. educational leadership introducing new school-based initiatives. Therefore, it targets a segment of teachers which may not be advantageous to EdTech providers - at least not on reliable basis. A more thorough examination into the more general jobs of teachers is therefore warranted. However, as discussed previously, there is a dearth of research on the jobs of teachers. Therefore, attention was turned to alternative synonyms typically seen in academic literature; more specifically - teacher roles.

The literature showed five key roles for a teacher, these were: 1) the teacher as a controller 2) the teacher as a director 3) the teacher as a manager 4) the teacher as a facilitator and 5) the teacher as a resource. These roles form a continuum of teacher roles. However, roles are prone to changing not just during lessons but also over a teacher's career. As such, it was necessary to include the professional career lifecycles of teachers to create more stable customers. There were three categories of lifecycles; 1) Novice, 2) Mid-Career and 3) Late Novice. This further sharpened the thinking of the types of teachers to target. The merging of the roles with career lifecycles is a new and novel approach to categorising teachers as customers and may provide a useful tool in minimising the risk EdTech companies take when entering the Irish K-12 market.

Roles of Teachers and Their Career Stage					
	Teacher as Controller	Teacher as Director	Teacher as Manager	Teacher as Facilitator	Teacher as Resource
Early Novice					
Middle Novice					
Late Novice					
MCT: Stabilization					
MCT: Experimentation					
MCT: Taking Stock					
LCT: Serenity					
LCT: Disengagement					

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Introduction

The purpose of this research was to identify and, where possible, develop an Atlas of teachers' jobs to be done. To do so a two pronged approach was used. First, examination of research in the jobs to be done sphere was conducted. This involved a focussed search through scholarly engines and journal databases as well as a deep dive through the Christensen Institute which publishes regularly on JTBD. Additionally, a review was also conducted of academic publishing which focused on similar propositions to the JTBD, namely, the role of a teacher.

This report is divided into two main sections. The first introduces JTBD theory and examines the only available piece of research on teachers JTBD. The second examines some literature on the role of a teacher. At the conclusion of section two, a teacher job matrix is presented based on the evidence and data found from the this report.

Section One: Teachers' jobs to be done

A job is the underlying desire a customer has that causes them to hire a product or service. The term Jobs to be Done was first coined by Clayton Christensen following his collaboration with Tony Ulwick and his Outcome-Driven Innovation (ODI) model. The concept of the Job is to shift the focus to the customer rather than the product. As Tony Ulwick states; '*..customers hire products, services, software, and ideas to get jobs done*' (Ulwick, 2016). In the years since, Ulwick and Christensen have found success applying their JTBD methodology; most famously in the McDonalds Milkshake. Over the years the JTBD theory has been "*proven … because they are based on evidence, verification, and repeated testing...over a 26-year period*" (Ulwick, 2017). The JTBD theory contains nine core tenets:

1. People buy products and services to get a "job" done - people have underlying problems they are trying to resolve. People hire products/services to get a job done.
2. Jobs are functional, with emotional and social components - Jobs can have different emotional and social benefits to include making the person look a certain way etc.
3. A Job-to-be-Done is stable over time - Functional jobs do not change over time, what changes are the products they hire.

4. A Job-to-be-Done is solution agnostic - Customers don't know the best solutions. It's not about a faster horse but something innovative

5. Success comes from making the "job", rather than the product or the customer, the unit of analysis

6. A deep understanding of the customer's "job" makes marketing more effective and innovation far more predictable - identifying and understanding the need makes innovation less risky

7. People want products and services that will help them get a job done better and/or more cheaply - People are not loyal to one brand and will change products and services if the achieve the job quickly and/or more cheaply.

8. People seek out products and services that enable them to get the entire job done on a single platform - Customers don't want to appendage solutions together but want the presented as a whole.

9. Innovation becomes predictable when "needs" are defined as the metrics customers use to measure success when getting the job done (Ulwick, 2017)

These nine tenets help providers better understand their customers needs through the jobs they need to get done. These jobs are stable over time and therefore can lead to a stronger identification of underserved and overserved needs, discovery of customer segments with unmet needs and help make innovation much more predictable. Therefore, it stands to reason, that Irish Edtech providers who - at least anecdotally - have yet to fully tap into the education market could benefit from a less risky approach to innovation within this market space. The first step in developing this approach is in the identification of teachers' JTBD. The research conducted within this report sheds some light, both in terms of pragmatically and academically, on our current understanding of teachers JTBD.

The jobs of teachers' looking to innovate their instruction

A review of the literature was conducted using Google Scholar and the Trinity Library. Keywords such as "Jobs to be done of teachers" "Jobs to be done of schools" Jobs to be done in education" "The jobs of teachers" "Teachers Jobs" and more were used and several articles' abstracts were reviewed for consideration for full review. Surprisingly, there were no scholarly articles, recent or otherwise, which provided or alluded to the jobs to be done of teachers. Instead, attention was turned to work published by the Christensen Institute - a non-profit research institute founded by Clay Christensen.

The Christensen Institute has an extensive catalogue of educational blog posts and opinion pieces on the current educational trends in technology and innovation - which made it all the more surprising that at the time of writing no research had been done on the jobs of teachers. However, a new report published on 12th September 2018 added a first attempt to categorise the jobs of teachers. The report entitled "*The Teacher's Quest for Progress: How school leaders can motivate instructional innovation*" (2018) examines the Jobs to be Done of American k-12 educators adopting new teaching methods. The report puts forward four jobs of this demographic of teachers:

1) Help me lead the way in improving my school
2) Help me engage and challenge more of my students in a way that's manageable
3) Help me replace a broken instructional model so I can reach each student.
4) Help me to not fall behind on my school's new initiative

This report set out to determine which jobs cause teachers to hire new instructional practices. To discover these jobs, the authors created what they called mini documentaries which examined the how and why teachers made the switch to new instructional methods, as well as the forces and barriers. A cluster analysis methodology was implemented to analyse the interviews and the above four jobs were determined. In addition, a survey was conducted with 102 teachers to validate the jobs they identified and confirm their use of language. From these mini-documentaries and survey results, the researchers were able to identify the push and pull forces involved for each of the four jobs. In the next sections, I will present the findings from "*The Teacher's Quest for Progress: How school leaders can motivate instructional innovation"*.

Job 1: Help me lead the way in improving my school

The first job identified found that teachers with the job of "helping me lead the way in improving my school", adopting a new methodology was not a procedural requirement, but a natural enhancement of their ability to teach and improve their students learning. What their research found was that teachers with this job typically came from schools who had received grants or implemented major initiatives to tackle shortcomings such as low student achievement, drop outs, discipline etc. To these teachers, there was a sense of fulfilment in adapting their methodology to improve their school's performance. The researchers identified four pushes and six pulls for enabling progress in job 1. The pushes were: 1) Low school test scores 2) new grant or initiative 3) asked by management and 4) starting over in new school or grade. The six pull forces were: 1) be seen as a leader or pioneer in the school 2) make an impact in the classroom 3) try my new ideas 4) have other teachers follow me 5) help bring up the school's test scores 6) feel like I belong and fit into my new place.

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The researchers went on to identify that the "top-down" approach to these initiatives generally do not work. Instead, stakeholders should invite these teachers to lead and direct the pilot initiatives. The stakeholders should then focus their efforts on ensuring teachers experience the desired outcomes of their new, innovative methodologies.

Job 2: Help me engage and challenge more of my students in a way that's manageable

Teachers who are identified to have job two can be categorised as the early adopters. These are teachers who wish to be up to speed on all the latest developments in order to expand their teaching repertoire so they may narrow the ability gap between their students. The key difference between teachers of Job 1 and Job 2 is that engagement is central to the adoption process. Those in Job 1 will adopt a methodology to the detriment of engagement if it improves test scores. While those with Job 2 will only adopt a new methodology if it increases students' engagement and intrinsic motivation for learning. For this job, there were three pushes and five pulls identified. The pushes were: 1) I spend time trying to keep up with the gap in students' ability 2) we have money to spend on instructional resources and 3) I already have some familiarity with the new tools. The five pulls were: 1) Have new resources that interest students 2) challenge students and let them experience something new 4) meet students' varied learning needs and speeds and 5) have my students learn independently. It was recommended that teachers who are identified with job two be supported and encouraged to indulge in their desire to change. This could be achieved by providing a laptop cart where none existed before or to detail the professional development on offer alongside new methodologies or practices.

Job 3: Help me replace a broken instructional model so I can reach each student

The third job bares some similarities to job 2 however, despite repeated attempts to change their pedagogy, they see no meaningful or last impact on their students. As a result, they may become despondent or frustrated. There were five pushes and pulls identified for teachers with job three. The pushes were: 1) I spend time trying to keep up with the gap in students abilities 2) I see students are not engaged 3) I am doing a lot of work and it's not making a difference 4) I have become frustrated with the results and 5) I know the current way does not work and I want to do it my way. The pulls were: 1) Bring energy and challenge students 2) meet the students where they are and get them learning at their own pace

3) Improve individual test scores and class readiness 4) feel like a good teacher and love teaching again and 5) Use multiple ways to teach. These teachers were not inspired by school-wide initiatives, instead, this may actually serve to frustrate them. The teachers of job three want to see each individual student advance - not be more engaged or achieve higher test scores. The recommendation made by the researchers was to afford teachers with a degree of autonomy from the rest of the school and independent of any school-wide initiatives. By allowing these teachers the scope to safely fail, they will likely iterate and find new practices that will, in time, progress students to the teachers' satisfaction.

Job 4: Help me to not fall behind on my school's new initiative

Teachers with job four are distinctly different from those with jobs 1 through 3. These teachers are not actively looking for ways to improve upon their existing practices. To these teachers, they have mastered their skill and believe, how they teach is the best for their students. Learning and mastering a new pedagogical strategy is seen as adding more complexity to their already complex job. This job manifested when school-wide initiatives were successfully embedded and the teachers had no reasonable objections to make. To these teachers, change is about compliance rather than improvement. The researchers identified three pushes and six pulls for teachers in job 4. The pushes were: 1) The school has adopted a new instructional initiative 2) other teachers have made the practices work and 3) it's now my turn to get on board. The six pulling forces were: Keep my students up to speed with their peers 2) stay at my school and with my class 3) look like a team player 4) show people that I'm trying 5) keep up with the other and not be seen as a problem and 6) avoid getting bad reviews. The researchers recommend that initiatives not be designed to fulfil this job, as it rarely leads to beneficial outcomes. Instead, it was recommended that teachers in job 4 be moved to a new grade level or subject. Such a move may provide the necessary nudge to move a teacher towards job 2.

The report concludes that initiatives cannot '*be all things to all people*' (p. 23). To believe so ignores the job teachers are trying to get done and, as such, may doom the initiative to early failure. When implementing any initiative within a school, it is vital that the underlying jobs to be done are identified to maximise the chances of success.

Issues with the "Teacher's Quest for Progress" report:

The "*Teacher's Quest for Progress: How school leaders can motivate instructional innovation*" acts as the tentative first steps into a previously unexplored area - teachers' jobs to be done. However, the results from this report need to be placed within the context of the Irish education sector as well as within the principles of academic publishing.

Firstly, this is not a peer-reviewed publication. Instead, it is a report developed, conducted and written by a centre run by one of the founders of the JTBD theory, Clayton Christensen. Since the report is not of scholarly merit, the findings should be approached with caution. Indeed, no information on the ethics or methodology is provided in the report, making it difficult to ascertain the quality of the data collected. However, some attempts were made to provide information on the tools and analysis methods used, but again no further details were provided other than a statement of fact.

Secondly, the report is written within the context of teachers' adopting new practices i.e. educational leadership introducing new school-based initiatives. Therefore, it targets a segment of teachers which may not be advantageous to EdTech providers - at least not on a reliable basis. A more thorough examination into the more general jobs of teachers is therefore warranted. However, as discussed previously, there is a dearth of research on the jobs of teachers. Therefore, attention was turned to alternative synonyms typically seen in the academic literature; more specifically - teacher roles.

Section Two: The role of a teacher

As discussed in the previous section, there is a scarcity of research conducted specifically on the Jobs to be Done of teachers. Therefore, attention was turned to more traditional educational research on teachers. For this, an examination of teachers' roles was conducted. In total, five studies were identified as pertinent and reviewed for inclusion in this report. The list of references can be found in table 1 below. Starting chronologically, the first publication reviewed was the book "Teaching by Principles: An interactive approach to language learning pedagogy" (Brown, 1994). The second publication, an online blog published by the international house journal, examines teachers' professional life cycles (White, 2008). The final three studies examined the role of teachers and how these can be affected by social and environmental issues (Makovee, 2018), their own professional identity (Farani and Winarni, 2018) and what is a teacher (Kona, 2018).

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Article	Year	Focus	Summary
Teaching by Principles: An interactive approach to language learning	1994	Effective teaching in the second language classroom	• The five roles of a teacher ○ Teacher as a controller ○ Teacher as a director ○ Teacher as a manager ○ Teacher as a facilitator ○ Teacher as a resource
Teachers' Professional Life Cycle	2008	Identifying the life cycles of second language teachers	Three main cycles: • Novice ○ Student teacher/Early novice ○ Middle novice ○ late novice • Mid-career ○ Stabilisation ○ Experimentation ○ Taking stock • Late-career ○ Serenity ○ Disengagement
A Sustainable Role: Teacher as a materials developer	2018	Identification of the many roles of a teacher and how they contribute to the Sustainable Development Goals (#4): 2030	Teachers have many roles and may need to use multiple over the course of a lesson. This flexibility is important to ensure good quality education.
The Idea of a Teacher: Paradigms of Change	2018	What is the role of a teacher, not just proactively, but in cultivating traits in students?	Teacher is a symbol of transformative power - interpreting the world and disseminating it to the masses to identify social contexts. Critical thinking is key - teacher seen as an emancipator.
The Teacher's Role and Professional Development	2018	Examination into how the role of the teacher is defined and how this builds onto their professional identity	Discusses how the role of a teacher is dependent on cultural, social and environmental factors and that teachers define their role through their personality traits

Table 1: list of publications reviewed for inclusion in this report

Published in 1994, Brown's book discussed, in great detail, how to effectively teach in the second language learning classroom. Of note though, are pages 167-168 where he details the five roles of teachers. These were: 1) the teacher as a controller 2) the teacher as a director 3) the teacher as a manager 4) the teacher as a facilitator and 5) the teacher as a resource. The role of teacher as a controller is what most people would have typically experienced during their time in school. The teacher is seen as a master controller, constantly determining where students go, what they should say, do and speak. This role allows for the teacher to predict what will come next in any lessons because they have meticulously planned what will happen and when, most likely not allowing for any leeway. While this may be the zen of teaching - having mastery over the class and people in it - it makes it virtually impossible for authentic student engagement to occur, which is vital for learning (No author, 2008). However, some degree of control is necessary to conduct lessons, without this control it would be difficult to guide students through a lesson. In fact, teachers, particularly new teachers, often struggle to maintain this mastery of control - which will be discussed a little further down this section. The second role sees the teacher as a director, or as Brown likens it, a conductor of an orchestra (1994, p.167). In this role, the teacher approaches the lesson with a structured approach and as the students engage the teacher redirects their efforts to ensure the learning process continues effectively. The third role sees the teacher as a manager. Similar to how a manager in a corporate setting runs their business, the teacher designs and implements their lessons and schemes of work but allow each individual student to be as creative as possible within a set of given parameters set by the teacher. The fourth - teacher as a facilitator - puts the teacher into the background of the lesson, allowing their students to take ownership over their own learning processes. The teacher in this role helps clear away and blocks to learning a student may have. The fifth and final role of a teacher is that of a resource. In this role, the teacher has no direct control over the lesson and the direction of students learning pathways. Instead, the student is in full control of their learning and may rely on the teacher as an additional resource when they encounter difficulties.

The above five roles provide a high-level overview of the many strategies teachers employ not just throughout their career but also throughout each lesson. For example, a Science teacher who has a double science class (80 minutes) may structure the lesson in such a way that the first 40-60 minutes have the teacher as a facilitator as the students conduct an experiment and the final 20 minutes with the teacher as a controller as the lab reports are written.

This presents a major challenge to EdTech providers as they may not understand that during each lesson a teacher may shift through the roles. Therefore, a product which enables the teacher as a facilitator may fail as the teacher may or may not utilise that role often enough to warrant use. Even more dangerous is that EdTech providers may have a very narrow view of the range of roles teachers can choose from and as such may not fully understand the impact, or lack thereof their product may have. From this one study alone we can develop an appreciation of the many roles teachers can choose from. In addition, the description of each role provides evidence of a continuum between these roles from teacher-directed instruction to student centred facilitation. The continuum begins with the teacher as a controller as the most teacher directed role and ends with teacher as a resource. This continuum can be seen in figure 1 below.
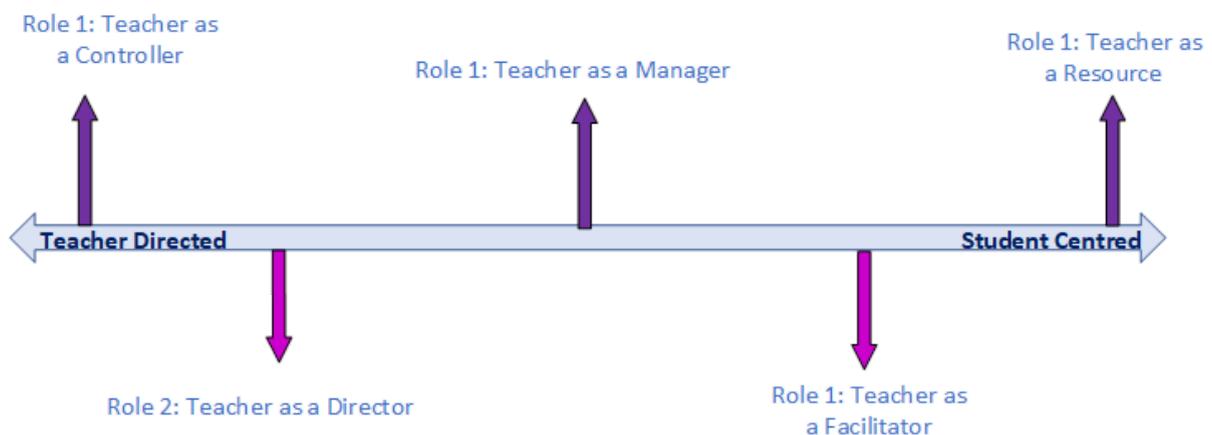

Figure 1: The continuum of teachers' roles from teacher directed (left) to student centred (right)

The next article illuminated teachers' professional life cycles throughout their career. White (2008) discusses the various views of teachers' professional life cycles before summarising what they believe to be the three main phases as defined by Huberman (2001). These were 1) Novice 2) Mid-career and 3) Late-career. Each of these stages could be further broken down into small life-cycles. The novice teacher could be further divided into Early Novice, Middle Novice and Late Novice. Mid-career teachers could be categorised into three phases: 1) stabilisation 2) experimentation and 3) taking stock. Late-career teachers were divided into two groups; serenity and disengagement. In their article, White (2008) provides a summary of this teacher's primary concern and thought/worry. Below each of these will be presented.

Novice teachers typically covered those from recent graduates to a couple of years' experience. The early novice covers recent graduates whose primary concern is surviving often thinking "*I'm not sure I can do this thing! Does everybody else see me as incompetent?*" (White, 2008). Middle novice teachers are mostly concerned with the task of teaching, often frustrated by the extra duties involved. "*Just let me teach! I'm working as hard as I can, but how am I supposed to teach all of these kids with so few materials and so many extra duties?*". The late novice teachers however feel as though they've almost mastered teaching and are now primarily concerned with the impact they have on their students' learning. "*I think I've almost mastered this teaching thing! Now how do I make sure every student learns in my class?*"

Once teachers have 'graduated' from the novice life-cycle they move into one of three mid-career phases. The first - stabilisation - sees experienced teachers confident in their pedagogy settle into a comfortable, yet predictable pattern of teaching. The second phase - experimentation sees experienced teachers looking for new and exciting ways to change up their teaching approaches and activities. The final mid-career phase is taking stock. Teachers with considerable experience (>10 years) may begin to reflect on what has come and what may be and at this crucial juncture may look back at their career with distaste, resigned to the idea of "more of the same" for the remainder of their career.

The twilight years of a teacher's' professional life cycle - late-career- is broken down into two categories: Serenity and Disengagement. Those in the serenity phase are comfortable with their classroom practice and their own role therein. The final phase - disengagement see those approaching retirement focus on their life beyond their profession and may begin to distance themselves from their duties and their students.

The division of teachers' via their career life-cycle may prove to be a meaningful way to segment teachers further for the purpose of customer identification. As seen earlier, teachers could be categorised by the role(s) utilised during a lesson and, as discussed each teacher can move dynamically between these roles. However, they cannot flow between life-cycles and as such, being able to categorise a teachers' role and life-cycle provides a more meaningful segmentation of the customer. Each teacher can be identified by their life-cycle and further categorised by the role they are adopting. Therefore, to successfully target a customer EdTech providers can select, for example, an early novice in the role of controller. A system which helps these early novice teachers control the flow of the lesson would be a good fit for this segment but, would not be adopted by mid-career teachers' in the experimentation phase adopting the teacher as a resource or facilitator roles.

The next study examining the role of the teacher was by Farani and Winarni (2018). In their study entitled '*A sustainable role: Teacher as a materials developer*', the researchers propose an additional role - that of a materials developer. In their paper, the Farani and Winarni (2018) argue, that in order to meet goals #4 (quality education) of the United Nations Sustainable Development Goals: 2030, teachers must consistently develop resources and materials to improve their own teaching performance and, as a result, the quality of education. However, this paper only furthers the evidence of their being five key roles for teachers.

Makovee (2018) discussed how professional development and other factors affect the role of a teacher and, in turn, their professional identify. In her paper, Makovee (2018) found that factors such as years of experience, and beliefs regarding their own qualifications significantly influenced the development of their own professional identify. Additionally, the author found that a teacher's role is often defined not just by their culture, but also social events and their environment to include geographic differences, indicating that our assumptions of a teachers' role in ireland may be somewhat different than those in mainland europe or even further internationally. Adams (1970) believed that the role of a teacher related to what an individual actually does i.e. their behaviour. In fact, the role of a teacher is not uniquely defined as it is influenced heavily by the factors listed above. Similar to how the use of technology is hampered by internal and external barriers, the role of teachers are influenced by internal and external factors. External factors include the views and expectations placed on the teacher by relevant stakeholders while internal factors are created by the teacher themselves and fall into two broad categories: 1) their own belief about their role and 2) their own expectations of their role. For example, a teacher of students in a low or mixed ability class view their role differently than those in higher ability classrooms. One of the most prominent findings from Makovee's (2018) study was that teachers tended to define their role not from external expectations but rather through their own individual personality traits. This result indicates that, while we can arrange teachers into certain roles with a degree of certainty, strong individual personality traits may significantly influence a teacher's own belief of their role.

The final study focused more on social aspirational expectations of the teacher - a modern look at the paradigm of 21st century teaching (Kona, 2018). The argument put forward by Kona is that teachers should be a paradigm for change, embracing social changes and developing students ability to challenge the norms and think innovatively. Teachers therefore, should be a spokesperson for the use of reason and challenging ignorance in place of honesty and compassion (Kona, 2018 p.12). While the paper as a

whole brings forth excellent social commentary on the role of a teacher such as "*The teacher as a symbol of the transformative power of education is about interpreting change in a way that is coherent to the masses, reducing extremism, fighting the empty symbolism of divisive nationalism...etc…*"(Kona, 2018 p.15) it is beyond the purpose of this research and not pragmatic in the context of the Irish education system. However, the teacher should be seen as an 'emancipator', providing students with confidence to know themselves through self-examination and reflectivity.

This section discussed what academic researchers believed to be the role of a teacher. In the papers presented above it can be seen that there is agreement between five roles: 1) Controller 2) Director 3) Manager 4) Facilitator and 5) Resource. In addition, it was identified that there are several life-cycles that professional teachers transition through from novice to late career teacher. The next section puts forward a matrix for identifying potential customer segments within the context of "*teachers*" which will be presented in table 3 below.

Teacher jobs matrix

Based on the research presented above on the role of the teacher and the identified of key professional life-cycles, a jobs matrix was developed. Table 2 below provides a teacher role and career lifecycle matrix. This matrix should be viewed as the first steps towards a teachers' jobs atlas. The purpose of this matrix is to segment the customer of "the teacher" into clearer segments with explicit roles to fill and needs or expectancy from their career life-cycle. No two teachers are the same. For example, two early novices may adopt different roles. One may focus on being the controller as they are uncomfortable with their students having control over the lesson. While the other may embrace the role of being a resource. In addition, the same teacher may adopt, or appear to be fluid in their use of different roles. This depends on many factors such as management, ability of class group, school environment, personality traits and more. Therefore it is vital to not only distinguish between teachers, but also between the roles of each teacher. This difference allows EdTech providers to distingush and validate their products with the appropriate segment for maximum impact and resonance.

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Table 2: Jobs to be Done atlas (matrix) mapping out the roles of the teacher with their career lifecycle.

A key takeaway from this piece of work is that while teachers can be broadly categorised by their stage of career or role, it does not fully capture the potential core jobs implicit in each of these roles and stages. In fact, the report published by the Christensen institute (2018) validates this assertion; in so far that they identified the four jobs of teachers who recently underwent instructional change - not teachers in general. There is a lack of research which clearly identifies the jobs to be done of teachers. However, this research has stratified the general teacher into clear and distinct groups based on their role and career life-cycle. The matrix can also be presented visually (see figure 2) to show how each teacher may don the many different roles available to them within their career cycle. Figure 2 shows the danger in focussing on only role or career cycle. If one focuses only on the role they lack understanding on how teachers will differ based on their experience. Conversely, focussing

only on career life-cycle casts too broad a net and will miss the intricates, pains and gains inherent in each role. At this time, jobs, pains and gains are unknown and warrant further research to expand upon the matrix.

Figure 2: Teacher Atlas Matrix - Visually showing the difficulty of identifying a teacher by either only role or career cycle.

Using the matrix presented in this report, it is suggested that research be conducted with post-primary teachers to validate the assumption that teachers' jobs to be done are determined (or heavily influenced) by their role. However, the matrix presents a stratified segmentation of the teacher as a customer and may, in the short term, provide some benefit to members of the EdTech community.

Conclusion:

This report set out to develop an atlas of teachers' jobs to be done. However, the review of relevant literature showed that there is still no agreed understanding of the jobs of teachers. It would be imprudent to develop an atlas on unvalidated thoughts and assumptions. However, using the literature on 1) teachers' jobs when implementing new instructional approaches and 2) the role of teachers a jobs teacher job matrix was developed. The purpose of this matrix was to shed light on the complexity and dangers of the teacher as a customer segment. Teacher's vary not just on their years of experience - professional life-cycle - but also on their respective roles within the classroom. To further complicate this relationship, the same teacher may utilise and switch between many different roles depending on various factors such as their own personality traits, working and school environment and ability of the class group in front of them. In developing the matrix it is hoped that EdTech providers have a clearer sense of this complex relationship and can make more informed decisions on their targeted customer segment. Additionally, the matrix represents a framework to which Learnovate could validate with teachers and from this validation identify the respective JTBD of the various roles throughout the life-cycle of teachers.

While this report does not present a comprehensive jobs atlas, it does lay the foundation on which Learnovate could conduct further research. This research would seek to validate/invalidate the assumptions that teachers' jobs are influenced by not only their role but also their career life-cycle. This would be achieved via survey and structured teacher interviews via core research phase II.

Our current understanding of teachers' jobs to be done is severely lacking. If the EdTech industry in Ireland wants to have its best shot at success in the market, we need to further understand the core functional jobs of Irish teachers.

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