After the Hiring Stage: Tacit Knowledge and What Goes on in the Classroom

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Abstract: This paper follows up on the earlier contribution related to determining readiness of a leadership candidate at the hiring stage. In turn, this study looks at what happens in the classroom. The foundation of this study is a survey of faculty teaching in Slovakia and is organized around a series of questions that focus on the use of tacit knowledge fostering techniques in the classroom. By extension, this paper lays the groundwork for HR processes of training and long-term coaching in order to support faculty in techniques to facilitate the transfer of tacit knowledge in the classroom.

Keywords: Tacit knowledge, technology, ICTs, leadership, curriculum, teaching and learning.

1 Introduction

Let us assume, according to the earlier paper entitled "Navigating the turbulent waters via HR processes: Tacit knowledge acquisition," that you have hired a teaching candidate that showed 'promise' in terms of being able to foster and coach students in the classroom towards the discovery of tacit knowledge elements. This current study is primarily focused on the situation in the classroom in terms of tacit knowledge awareness and 'readiness.' The main focus for this discussion is a survey among faculty teaching both full- and part-time in Slovakia and in Central Europe. The purpose of this discussion is to consider which areas may need further support via continuing HR processes of initial training and continuous professional development.

2 The Survey – Overview

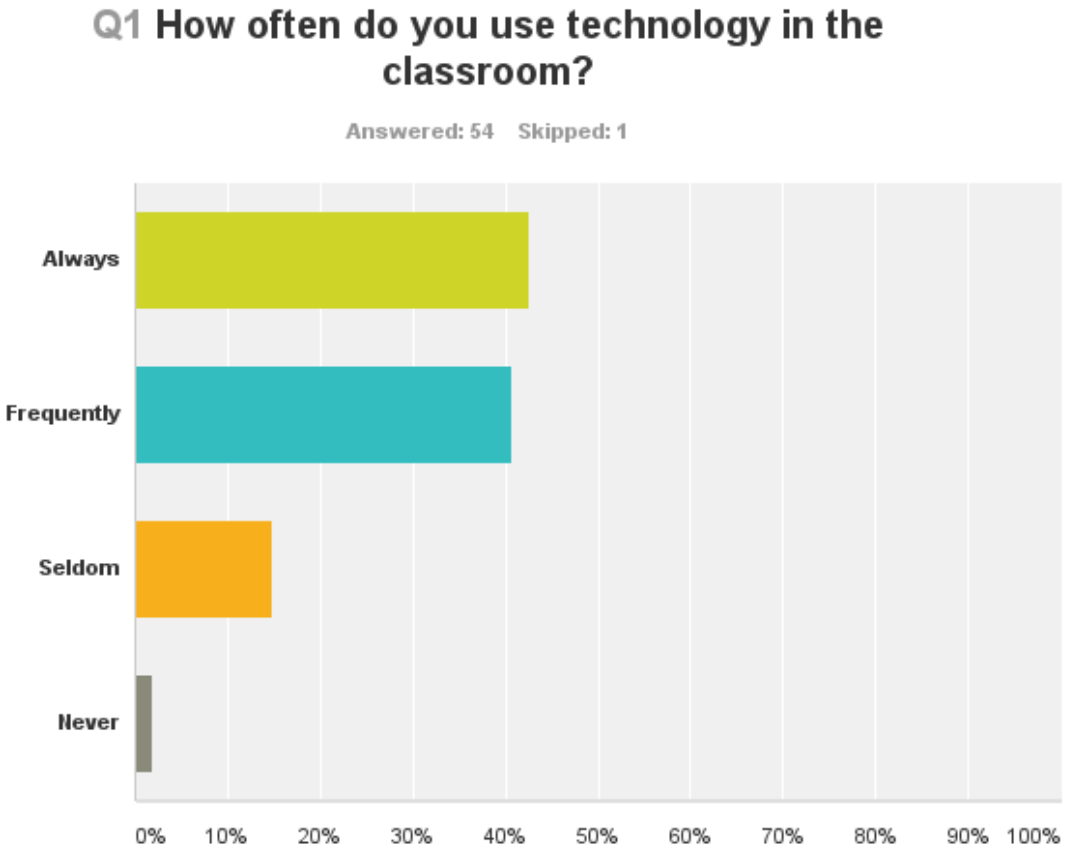
Let us now turn to the survey results of the survey for educators. I have gleaned out the following questions based on results that are most suitable for the discussion at hand and the relevancy of the original question related to tacit knowledge and what goes on in the classroom in Slovakia:

Question #1: How often do you use technology in the classroom?
Question #2: How do you use technology in the classroom?
Question #3: Do you support the transfer of tacit knowledge in the classroom?
Question #4: In your opinion, are ICTs used effectively in the Slovak education system?
Question #7: Is the Slovak education system effective in terms of preparing students for both the short-term and long-term future?
Question #8: How would you characterize the comparative advantage of your teaching?
Question #9: Do you perceive finance as a constraint for a systemic focus shift in education from tacit to explicit knowledge? Can you think of some incentives to move education more towards a system centered on tacit knowledge?

Here, then, is a look at the results in turn, with the ensuring discussion and analysis:

2.1 Frequency of use of technology in the classroom

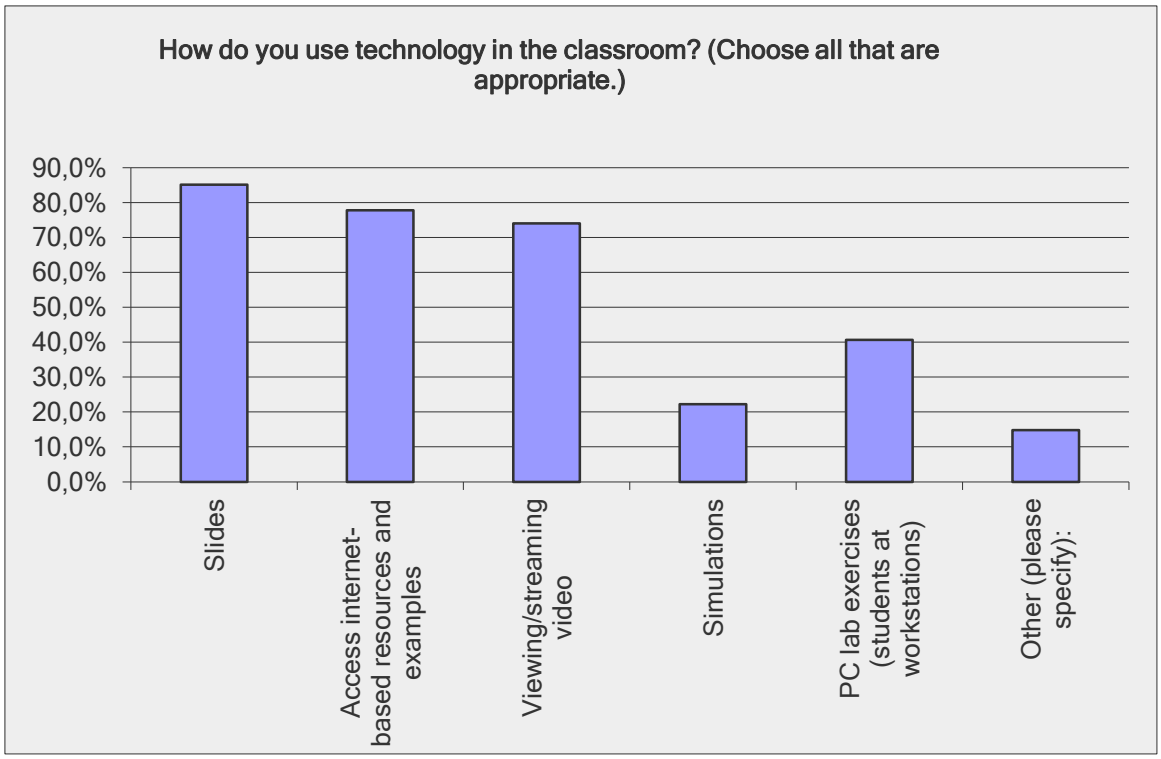
Question #1 was, *How often do you use technology in the classroom?* Answer options were a) Always, b) Frequently, c) Seldom and d) Never. Here are the results:



It bears to keep in mind that this is a self-assessment of how often technology is used; the question also does not define what the time parameters mean—does "always" mean in every class, and "frequently" mean every other class, etc.? It is also not made clear what qualifies as "technology." Does it mean anything related to computers? Does it include DVD players? Overhead projectors? Anything you plug in? An abacus? Regardless, the vast majority (over 80%) use technology regularly, and almost everyone surveyed uses it at least some of the time. Let us take a slightly closer look at how technology is used in the classroom:

2.2 How technology is used in the classroom

Question #2 asks exactly that: *How do you use technology in the classroom?* A number of options were presented: a) Slides (PowerPoint); b) Accessing internet-based resources and examples; c) Video viewing; d) Simulations; e) PC lab exercises; respondents could also provide their own examples of how they use technology in the classroom. A graphic depiction of the results is as follows:

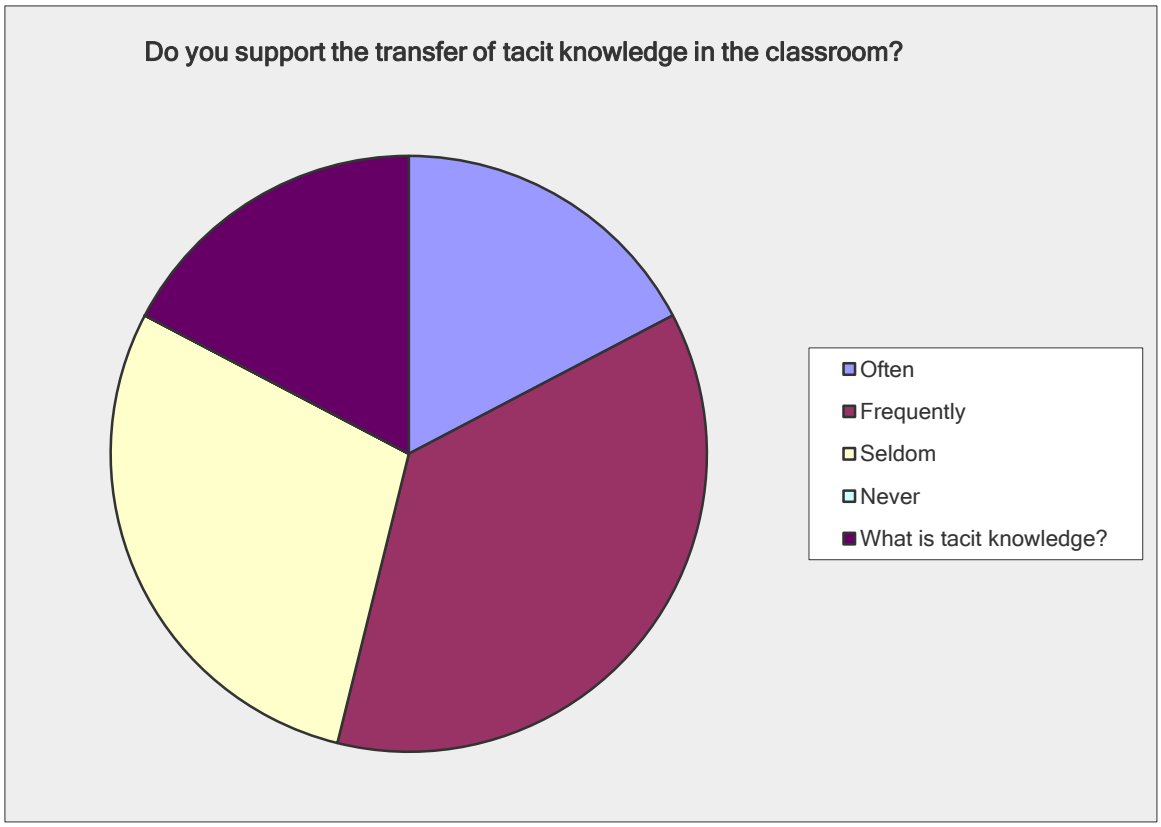


Other responses (written in a comment box) include webinars, the use of other teaching software or applications, sound recordings (audio CDs), movies on DVD, using iPads for research, cameras ("taking pictures for displays and making their own workbooks with pictures"), white board (presumably the so-called interactive whiteboard), and having students google the most recent data on their phones during the lesson. One other write-in response, "dataprojector presentation," is unclear: Does it refer to using slides, or some other means of presentation?

From these results, it would appear that a lot is going on in the classroom in terms of the variety of ways technology is being used. What has not been correlated is how often these different means are being used — can you see many different uses in the classroom on a given day, or are some of the uses rather rare? More on this later, as more data are explored.

2.3 Supporting the transfer of tacit knowledge

Question #3 was, *Do you support the transfer of tacit knowledge in the classroom?* Results are as follows:



It seems almost 83% of respondents do something to support the transfer of tacit knowledge at least some of the time. The most telling answer was "What is tacit knowledge?" As indicated above, part of the intent of the question was actually to determine the awareness of the concept and thus how intentionally situations were created in the classroom to foster it. (One respondent approached me as I was in a car, leaving to go to another campus, and asked, "What do you mean by 'tacit knowledge'?" He then gave a rough definition of his understanding.) Of course, there's also an 'embarrassment' factor, and technology can easily be applied by respondents to quite quickly determine what tacit knowledge is if they had never heard of it before. The question went on to ask those who indicated "Often" or "Frequently" for details on how indeed they supported the transfer of tacit knowledge in the classroom. A selection of the more interesting responses is below:

- In using case studies, examples of own experience and role (simulation) games followed by discussions on the outcome.
- By the method of induction. I encourage students to use their own experiences to get the right approach to the theory. To reveal what they already know, although without being aware of it.
- By discussions – various opinions, ideas, attitudes, by letting students work and solve various situations and problems, by encouraging the students to express themselves freely.
- That's key. Discussions, stories, simulations, coaching.
- As a finance teacher this might seem to be difficult to apply in my courses, yet even such "hard" topics can be used to increase the overall intelligence of students by explaining [to] them the relationship and impact of numbers on various aspects of business or even personal lives, i.e., I'm always trying to provide the overall picture rather than focusing on an isolated topic.
- By showing different approaches to the same problem…
- I take students on excursions related to our covered topics. Students are also asked to do goodwill projects that are connected to our themes, so they have real-life experience with those in need, be it people, animals or certain habitats.
- I help out students in areas that require years of experience to use a particular element of the course. For instance, I ask students to come with their laptop downloading data from the blackboard and then go

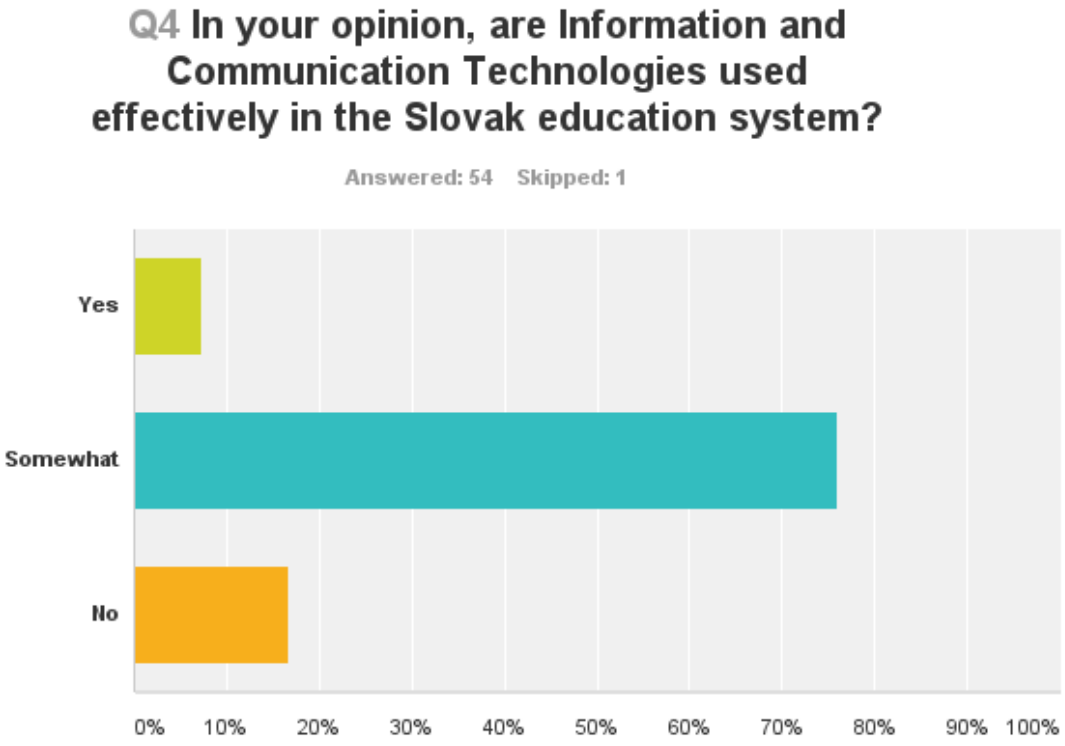
through each step with each student regarding the construction of the panel data. This is something which is very difficult to catch up for the students with no past experience in time series analysis.

Experience, either discussing one's own or having students share theirs, was mentioned by 12 respondents. Also mentioned relatively frequently were the use of real life examples and case studies, discussions and collaborative work/interactions among students, and "enabling self-discovery" via activities in the classroom. One respondent indicated that "at the heart of strong teaching-learning relationships in the classroom" was critical to transferring tacit knowledge and that building a "rapport" with the students lays a foundation for this type of learning.

Key wording and phrasing in the comments above showing an understanding of tacit knowledge and how to support its acquisition in the classroom are highlighted and underlined. From the examples stated here, it is apparent that many of the respondents do have a clear understanding of what tacit knowledge is and of some of the key ways to support it in the classroom and beyond.

2.4 ICTs and their use in the Slovak education system

Question #4 takes a different tack, looking at the broader issue of ICT use in Slovakia:



Once again, terms in this questions are loosely defined and widely open to interpretation by the respondents — in short, a great deal of tacit knowledge was necessary in completing this survey. For example, what are these nebulous "Information and Communication Technologies" and what is meant by using them "effectively"? Ill-defined as these terms may be, the general consensus is that the use of ICTs could be better: Over 90% of respondents felt there was significant room for improvement. More telling are the explanations behind the respondents' selections. Here's a sampling of the more intriguing comments:

- Equipment in some schools is out of date. Resistance of some teachers to technology.
- Depends on the teacher and available equipment of the school.
  […] The objective of improving the quality of higher education is about distance education to daily. This can be realized only motivated and technically skilled who teach with the use of electronic instruments

appropriate to the particular subject, to [the] systematically maintained LMS platform, with the indispensable institutional support [of the] top management of the educational institution.

- In many cases, the hardware is missing and if available the technology is too old and too slow.
- It depends on the enthusiasm of a few teachers in public universities.
- Slovakia has lost several years when ICT was not consider[ed] the priority and even now it is budgeted less than it should be.
- As far as I know, there is still room for improvement in adopting and using up-to-date technology and in teaching how to use Internet resources wisely and effectively.
- I think that there is more investment needed to cover communication technologies across all regions of Slovakia and unify the knowledge and necessary outcome.
- Too much prescribed curriculum, too much [sic] students in the classroom, a few prescribed lessons for filling that curriculum, not so good and so much ICT devices in the classrooms, and low salary for motivating to prepare for each lesson, and state budget for education is too low at all.
- There are basically 3 categories of schools regarding IT:
  1. They are well equipped and using it;
  2. They are well equipped but many teachers simply don't know how to use the machines;
  3. They lack the equipment because of finance reasons.
- Online study, for example, is almost non-existent in Slovakia.
- Depends on instructor and his or her skills.
- Missing finance for higher improvement at education system.
- Although formally most schools are possibly equipped with PC Lab instructors rarely use the PC Labs in a manner that would help to transfer knowledge effectively.

A significant number of respondents indicate one of the key factors in limited use of ICTs is old or outdated equipment and software. Even more important, many also specifically refer to the "attitudes" and approaches of educators as a limiting factor. At the heart of it all are financial factors, which many respondents highlight: lack of money means little investment in hardware and software, and also few incentives to motivate teachers.

One respondent summarizes the situation like this: "[The] Slovak Educational system is significantly behind other OECD countries in use of ICT especially for deep analysis/graph generation, technical analysis, statistical analysis and other uses impacting students analytical abilities." Again, there would seem to be a need for substantial investment to upgrade hardware and software, and for the necessary training.

Several respondents point out their perceived misuse of technology in the classroom in quite succinct terms:

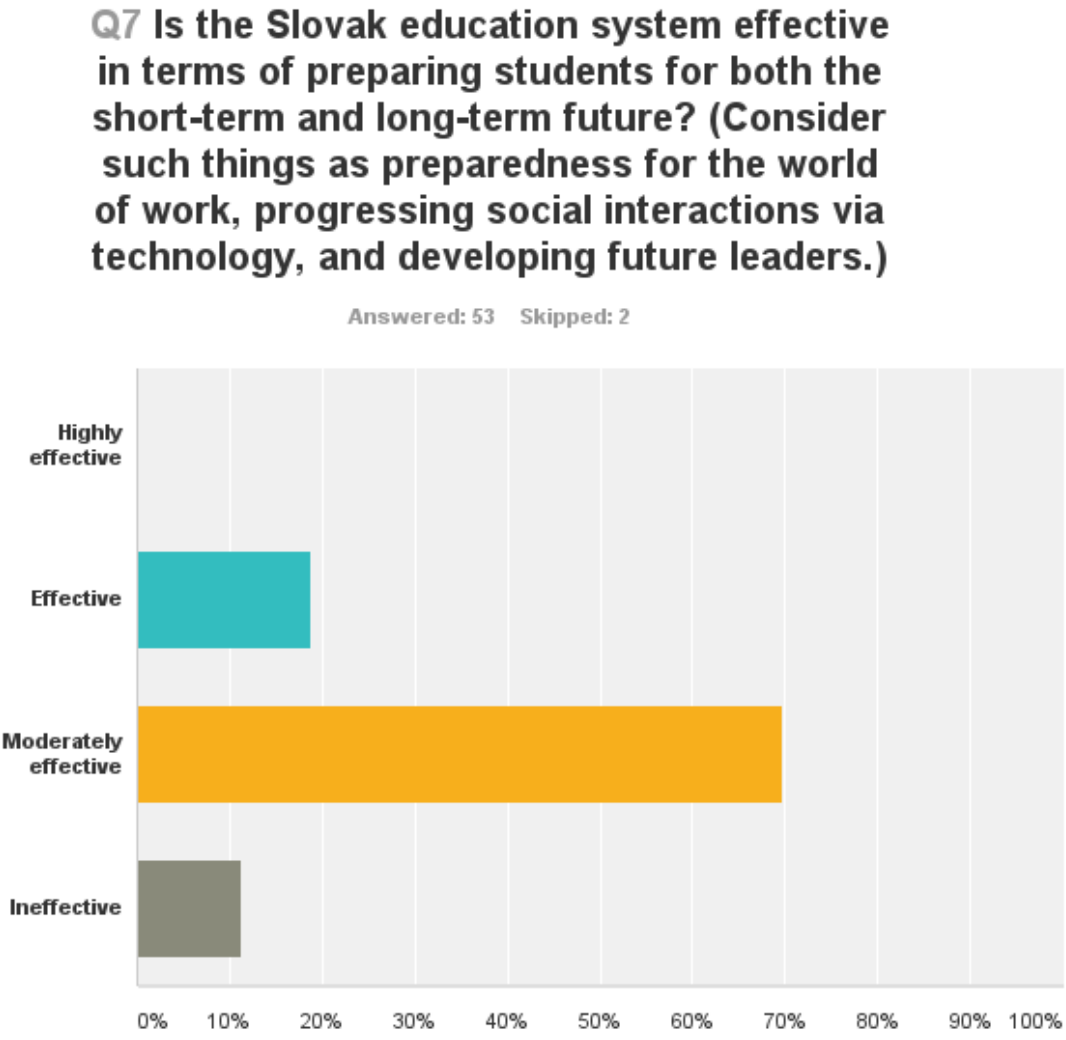
- There is [an] obvious abuse of powerpoint in classroom setting. There should be a[n] anti-powerpoint campaign…
- Many teachers believe that e-learning equals to posting their lecture notes on the Internet. Because they truly believe that it suffices, they are unable to move further – towards a true and intensive interaction.
- Having a son at school I see that for most children a computer is a source of entertainment rather than knowledge or research.
- Too much is left up to teachers, and too little trainings [are] given to those teachers to be able to use ICT effectively.

Despite the relatively low expenditure on ICTs, could it be that in some way sufficient technology is available but what is missing is an effective approach to using ICTs? More on this later.

2.5 Effectiveness of the Slovak education system in preparing students for the future

And what about the future? **Question #7** states, *Is the Slovak education system effective in terms of preparing students for both the short-term and long-term future?* The question is extended parenthetically with some qualifiers to consider: *preparedness for the world of work, progressing social interactions via technology, and developing future leaders.*

Here is a graphic depiction of the results:



Again, terms like "effective" "short-term and long-term future" are ill-defined; regardless, respondents all indicate there is room for improvement in terms of the Slovak educational system's ability to prepare students for the future. Once more, the comments are more illuminating on this matter:

- Many schools are not connected with the real world as they operate in a homogeneous environment. Many teachers do not have any "working" experience outside academia (underlining added).

Many respondents picked up on this theme of faculty that lack experience outside academia in the Slovak education system:

- The students would need more exposure to the world of work also during their studies to be better prepared.
- I think there could be more emphasis by using more current articles and research. More connection between students and outside companies.
- Missing larger interconnection with…real life – chance to see how things really work in reality. Social interactions via technology is on [a] relatively high level but take place mostly outside the classroom or is not connected with subject matter discussed in class.

Conversely, a number of respondents identified the same problem, but from the perspective that there is too much emphasis on theory in Slovak schools:

- […] Most fields of study are very theoretical and do not link to the practical world.

- There are a lot of schools preparing students for both [the short-term and long-term future]. Unfortunately, there are even more [schools] that are useless (prevalence of mechanistic/bureaucratic approach…)…
- I think that there is a great need to connect the practical experience with the theoretical knowledge which I feel is still preferred over the practical knowledge (traditional way of teaching) especially in the state education system.
- State schools still put focus on theory and memorizing instead of practical knowledge and skill development. At the same time, many local private institutions still lack competitiveness in their programs and basically give away diplomas to anyone who applies… There are two exceptions – quality private schools (mostly foreign) and state universities with engineering and technical fields of study – there are the only schools maintaining quality in the whole system.

Some respondents focused on the approaches of teachers:

- There are still very few schools which adapt their teaching methods. Children are still being taught that very old-fashioned "sit down, be quiet and listen" way.
- Problem is also to attract high quality of academic personnel (another serious systemic problem – low percentage of the state budget for education).
- There is also a need to motivate the teachers to try new ways of modern, progressive teaching methods which would also require…"young blood" – young teachers to take over the very old generation who is often too traditional in the way of thinking and teaching. The older generation of teachers is also [too] rigid to make any changes, and it is often hard for them to accept the new, fast-developing and evolving technological era. Students need to…gain the practical knowledge via simulation IT, managerial programs, software, etc., to see how their taught knowledge can be applied in day-to-day operations at work.

One respondent laments the short-term focus of education, saying "the majority of Slovak universities are effective at creating 'good employees.'" The respondent goes on to say that in short-term "this is fine", but he/she does "not feel these universities prepare Slovakia to innovate, develop its own ideas, create new domestic business opportunities or challenge the current position. Long-term I think it does not lead to positive results."

A few of the respondents break through to directly discuss a lack of focus on tacit knowledge and critical thinking skill development in the education system:

- Education targets facts. So, the amount of explicit knowledge of Slovak students is usually higher than that of students from other countries. Much less time is devoted to tacit knowledge, i.e., to the application of students' knowledge and its transfer between different disciplines and problem areas.
- [The Slovak education system] fails to emphasize analytical and independent thinking.
- There seems to be a lack of focus on critical thinking skills, which are needed more and more in today's world. Additionally, the focus of the educational system seems to be on the inputs and less on the process, and even less on the outputs, where the focus should be.

There's a nicely summative response to the above themes provided by another insightful respondent:

- Although Slovakia's students continue to have access through education to some of the best jobs in the world, the education truly serves only the best students (with well-focused motivation and certain types of intelligence). I believe this is mostly due to an education system that continues its tradition of being based on rote learning, relatively simple abstraction and a mechanistic approach to teaching. There has been progress in recent years in creativity, constructive abstraction and the like, but this progress is too slow to prepare students effectively for the 21st-century world.

Finally, I'm not sure, given the constraints of written feedback, whether the following is meant to be positive or negative:

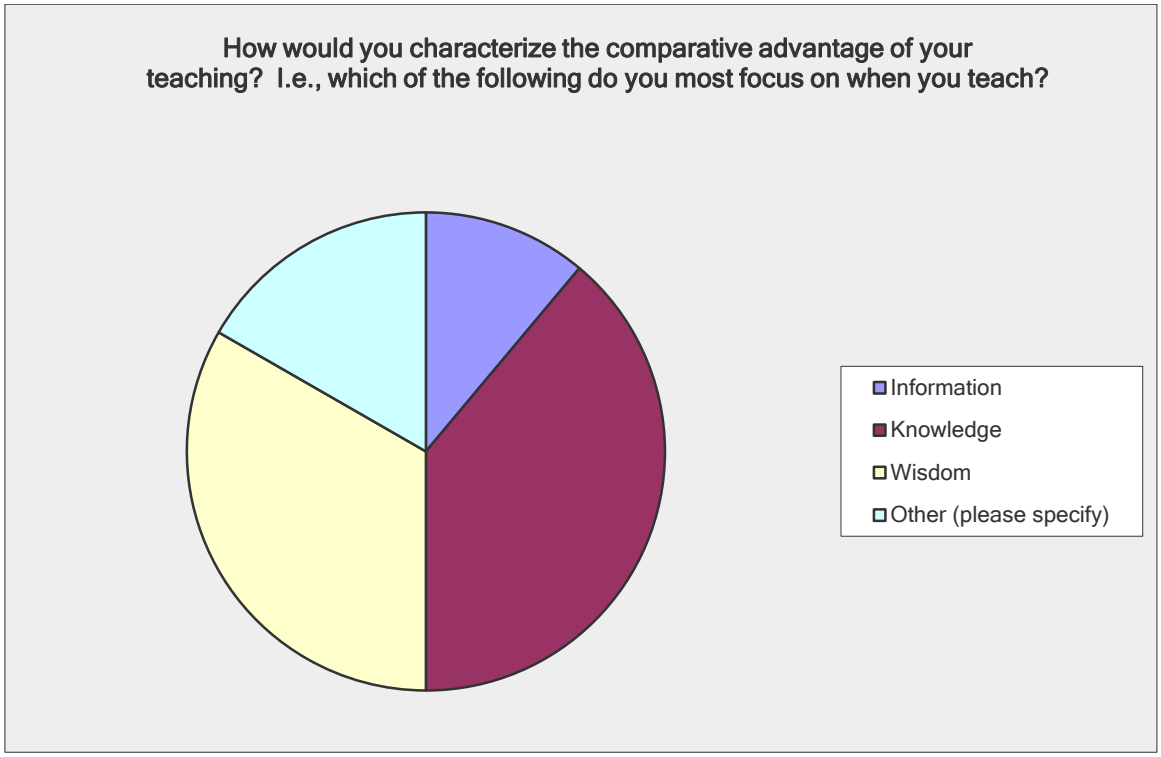
- I cannot for the life me name one Slovak poet? I know many scientists/engineers but not many humanities-focused professionals.

Is the respondent saying the fact that he/she cannot name one Slovak poet is a failure of the current educational system to produce one with enough of an impact to be familiar to him/her? Or a failure of the system that he/she did

not learn of them? Or that there is no point in education in the humanities because it will not lead anywhere? The ambiguity in the comment is actually intriguing…

2.6 Teaching focus

Question #8 in the survey seeks to have educators categorize the emphasis in their teaching on one of a) Information, b) Knowledge or c), Wisdom, or to identify another alternative. Here are the results:



Once again, terms are not defined and it is left to the respondents to both understand the connotation of each category and prioritize their emphasis in the classroom on that element based on their understanding. As you can see, the larger part (almost 40%) selected "knowledge" as the main focus of their teaching; however, not far behind at 33%, comes wisdom. You could argue that both of these 'categories' of learning do involve an element of tacit knowledge—something beyond just 'pure' information, but that involves some higher understanding or critical analysis to bring further meaning than pure facts or data would.

Certainly, all teachers have a mix of information, knowledge and wisdom in the classroom, but the point was indeed to prioritize the one area that they focus on most. Many of the "other" respondents identified some sort of mix of the above. The leading other category outside these three or combination of them was "application" or "practice." One final comment is all about a tacit knowledge focus in the classroom:

> My primary focus is for the students to "connect the dots." I explain the topic in such a way that they can see how it relates to them personally, to the country, to the world. I think this is missing in our education – making connections and making it obvious that subjects do not have clear boundaries and overlap.

I can recall my years as an ESL teacher in a program where classes were divided into specific skill areas—reading, speaking and listening, writing and grammar – and students couldn't necessarily make connections between the subjects.

2.7 Finance as a constraint for a shift to tacit knowledge acquisition

Question #9: *Do you perceive finance as a constraint for a systemic focus shift in education from tacit to explicit knowledge? Can you think of some incentives to move education more towards a system centred on tacit knowledge?* This was an open question and the responses seem to be split between those that say money is critical

for the change and those that say the issue lies elsewhere. Many of the respondents identified a link between money and motivation for teachers, especially if the pay is so low that basic needs are not covered. There seems to be as much passion behind answers that say 'money is absolutely critical' and those that insist solutions lie elsewhere and need not have much to do with money. Here is a sampling of responses that indicate that additional expenditure is necessary to shift the focus to tacit knowledge in education:

- Yes, I agree. More funding for skills development for teachers to bring more knowledge of students.
- Stress should be placed on the practical usage of students' knowledge and MOTIVATION misses in every part of the education system.

Many respondents identified the investment be in teachers' salaries, equating the words "motivation" and "appreciation" to increased pay:

- Yes, finance in terms of motivation of teachers.
- More finance for schools (material back-up), more finance for salaries – I'm sorry but origin of all education problems is in absence of money everywhere…
- Finance is always important. Think the funds could be better used to get better teachers.
- Improving the status of the job by making it hard to study for it and then paying it better – the Finnish way. Yes, finance is a constraint as it is connected with status, motivation and just general comfort of the teacher. If a teacher is worried about daily survival, when can she/he be creative and what would motivate them?
- It is an issue of human resources in education. How do we attract the talented and/or experienced teachers/educators into the system? Is it [a] matter of financing or reputation of the profession? Both?
- It might be. Tacit knowledge sharing requires more interaction and communication with students on [an] individual basis. It may take place in [a] group setting but with involvement of all members. Discussions instead of lecturing. It is more demanding than lecturing. Takes more time and so those responsible (teachers) should be also financially motivated to focus on this style of teaching.
- Not entirely. Our educational system is underfinanced but a big financial flow would not solve the problem instantly. The society should also express its *appreciation* to teachers.
- [A] focus on tacit knowledge is mostly tied with personal beliefs, persuasions, and priorities, since it is more difficult to deal with tacit knowledge in education, than with explicit ones. Then, the move can be assured by inclusion into the *motivational system, annual evaluation criteria,* etc.

The last respondent above does concede that increased investment is not the only solution here.

Several respondents in favour of more expenditure in education to enable this shift were more prescriptive in their suggestions:

- Finance always is one of the constraints of improving education – *investments are needed in technology, qualified teachers, course books, etc*. One of the incentives could be showing clear connection between theory and practical use of it in everyday work duties.
- Finance still is a factor. I think the key is the quality of programs and teachers. Also, *cooperation of schools and businesses* on program development and (future) employee preparation might be one.
- …I do believe that Slovakia's society as a whole places too low a priority on education, as reflected in financial indicators such as *teacher compensation, general administration of schools, and training and development of teachers beginning at university and continuing through their professional lives*.

On the other side of the coin, about a third of respondents felt that no significant investment is necessary to enable such a knowledge-focused shift:

- No, I think this shift can be done with minimal budgets. Plenty of resources might be acquired for peanuts.
- I do not think that finance is the constraint. In my opinion, it is because education focused on tacit knowledge is time consuming, requires practical experience, and heavily depends on students' personalities.

A few respondents focused on attitudes and conservatism among educators:

- I partially see finance as a constraint, but not the main constraint. *The educational system is conservative and most of the instructors are quite traditional*. Paying them more money probably would not work if *they*

are too set in their ways. There needs to be some kind of intrinsic motivation to make changes. In my experience, few people are very proud of where they work and doing more than is required. At the university level, there is a much greater focus on publishing than providing quality teaching and passing on knowledge. I think more discussions, highlighting educators who attempt it and of course a greater interest and support by the administration would help [italics added].

- No, the issue is not finance, but culture: Caleb Gattegno commented that students need to work on language (or content) and teachers need to work on student (i.e., observe, intervene, facilitate, etc.), whereas what happens traditionally is that teachers work on language (or content) and students don't do much at all. *What needs to change is not hardware, but teaching perspective, attitude, beliefs, knowledge, etc., which probably costs little to influence…*[italics added]

One respondent suggested, in addition to government expenditure, to consider corporate investment but was skeptical about "having this private element added to education." Another identified an incentive as simply "workshops for teachers"; whether this is to teach approaches to enhancing tacit knowledge or to change attitude — or both — is unclear, but both goals certainly go hand-in-hand in any such training. Some investment would of course be required to run such workshops.

3 Summative comments related to the findings

As discussed above, part of the purpose of the survey tool was to bring the concept of tacit knowledge more actively into the consciousness of some teachers who had not deliberately considered its impact or importance before. In the past, teachers had more information than their students, often by virtue of their studies, expertise, experience and wide-ranging reading. This relative monopoly on information is no longer the case. The value a professor can bring today is more about filtering information, interpreting it and in fostering the tacit knowledge that surrounds the explicit knowledge and information. The teacher/expert needs to make it trivial (simple) in order to teach it.

Before conducting the survey, I had hypothesized that teaching methods in Slovakia have not changed much in the recent generation, with a focus on implicit knowledge and traditional lecturing techniques. This hypothesis was not adequately tested but only tangentially arises from the survey question and some comments. While a number of educational experts in Slovakia favour this observation, there has been no hard data to support this assertion. Regardless, it is not an incongruent or non-contextual assumption that the majority of professors at Slovak universities rely on traditional lecture techniques that largely focus on rote learning, with minimal focus on critical thinking and tacit knowledge enhancement.

Prior to the survey, I also had speculated that technologies (such as PowerPoint or similar slides) are only used to support traditional teaching methods. Technologies in general, as indicated in the above survey, are used to support more traditional teaching techniques.

The outcome of this study is to show that the Slovak education system, by focusing on teaching practices and techniques, can significantly improve without substantial investment. Techniques for effecting this change rely on system training and professional development that foster the development of tacit knowledge in the classroom. Such HR support should focus on three pillars to support the development of tacit knowledge in a university setting: leadership (administration), curriculum, and faculty training.

4 Conclusion - Application of findings and call for further study

The survey and analysis above have the purpose of pointing out training needs. While many teachers have a clear idea of what tacit knowledge is, with or with competence in the nomenclature, there certainly remains much work to be done to bridge the gap between Slovakia and other more developed EU economies in terms of competitiveness in education. What can the direct supervisors of faculty do to create an environment that allows teachers to foster or coach the development of tacit knowledge? What in turn can the highest administration of a university, or even the *ministry* of education, do in order to support these supervisors? How can the HR department within a university support a classroom environment where tacit knowledge acquisition is emphasized?

At the training phase, the HR department needs to maximize opportunities for fostering the transfer of tacit knowledge as a supplement to critical explicit and formal knowledge. The training phase itself must be designed by the HR department of an organization to allow for such tacit learning. This paper presents a foundation to build an adaptable model for an HR system that integrates and facilitates tacit-knowledge-fostering opportunities. Again, this paper focuses on the field of higher education but has wider ramifications for organizations outside this field.

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