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Professional Development for the 21st Century Teacher: Supporting Teachers in a 1:1 9-12 Classroom

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Abstract

Winona Area Public Schools, specifically Winona Senior High School, is in need of a systematic

change in the use of technology and the implementation of professional development regarding

technology integration. This project aims to research, survey, and create a plan moving forward

to better assist the school in creating a vibrant, organic way of professional development and

technology usage in the classroom. Information was gathered through an anonymous survey

from staff in the high school to gain insight and assess current usage, comfortability, and needs.

The research showed a strong usage of technology in the classroom and a willingness to use new

technology and applications. However, more importantly, it showed the impact lesson planning

has on these as well. The research has lasting implications for the school and is a framework for

better-assisting staff in professional development and lesson planning regarding new technology

and applications. In the end, these will further grow our knowledge and prepare the students at

Winona Senior High School for careers outside of the buildings.

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Chapter 1

Introduction

To better assist in providing quality education for students at the Winona Senior High School (WSHS), the district must invest resources, in the form of time and money, in the professional development of educators regarding the use of technology in the classroom. There is a disconnect between teachers using technology to enhance, foster, and create growth in discussions with the administration, classroom teachers, and technology integrationists. With an aging staff and an ever-changing society, there must be an initiative to strengthen our students' education and begin their understanding of the necessary skills and technologies they will contact when they leave our district. While our staff is committed and knowledgeable in their content areas, we must give them the technological strategies to use in the classroom, enhancing their already established curriculum while supporting this pedagogical shift.

Although vital to the district's growth, this project is even more critical for our students' future. Students need to leave our building with an edge in the workplace or their future in higher education. If we support our staff in creating a quality implementation of technology, strategies, and lesson planning, it will transform our district for our students, retain current teachers, and attain future teachers. The school district is making a strong push for technology in the classroom, with our schools currently being 1:1 with Chromebooks from fourth grade and beyond, we must use these devices for more than mundane tasks. Our district has strategically placed technology integrationists at the middle school and high school levels within the past four years. They

continued the commitment to district staff by employing instructional coaches to support staff members in constructing higher quality lessons and curriculum.

This project aims to continue developing these initiatives by researching current methods, gathering information from our existing staff, and creating a staff development curriculum in technology that supports and enhances our staff's knowledge and usage of technology in the classroom. This is not merely a one shoe fits all type of plan; instead, it is a plan that will allow all of our staff to feel comfortable and supported in the switch to a better understanding of the current products available that grow the curriculum, but also give our students the added benefit of preparing for their future careers.

Below are the goals this project aims to achieve:

1. To research the current use of technology and the level of comfortability of our staff in the district, specifically among classroom teachers and educational assistants at WSHS.

2. To establish a Technology Implementation and Development Team made up of classroom teachers, students, and members (administration, classroom teachers, educational assistants, technology integrationists) from all district levels (elementary, middle school, high school).

3. To develop a technology curriculum that meets the needs of classroom teachers, Educational Assistants, and the needs of the students.

4. To implement and monitor staff technology development training.

5. To assess and evaluate staff technology development training.

To assess these objectives, many stakeholders need consideration. Most importantly is our classroom teachers. These stakeholders will benefit most from this new shift in education in our district. A quality implementation will enhance the current curriculum and model many new

strategies and technological changes in society. Secondly, we must assess our current budget by discussing with administration our current needs and wants for our district moving forward. If this plan is to take root fully, it is crucial to have the support and means necessary to achieve these goals. We must actively seek funding for this implementation, speaking to the finance department, staff development leaders, and local grant providers to fund this program. Thirdly, we must assess and communicate with our parents and community (businesses) to see what skills are currently in the market or the lack of expertise that our current companies see in the workforce. If we research, plan, and implement correctly, this will create a vibrant school climate and enhance and grow our communities with skilled workers. Throughout this process, the stakeholder that will benefit due to the project's vision and continual focus on our mission statement will be our students. If the implementation is clear, concise, and well supported, they will have an enhanced education in the Winona Area Public Schools.

There will be obstacles to this implementation. Without getting too far into research or numbers, a district's budget is generally a primary issue. This project design will aim to navigate those problems creatively and exhaustively to provide funding for these initiatives. Technology in the classroom is not cheap; therefore, it needs to be funded if it is to be of quality. Some current classroom teachers will also find this new initiative as another trend in education and will be apprehensive about change. Resources, training, and tutoring will promote organic growth throughout the school, limiting this obstacle through time.

Chapter 2

Literature Review

According to the Bureau of Labor Statistics, jobs in Computer and Information Technology occupations are projecting to grow 12% beginning in 2018 through 2028. Much faster than the average growth for other occupations. The projection is said to add about 546,200 new jobs. Demand for these workers will stem from greater emphasis on cloud computing, the collection and storage of big data, and information security. The median salary for technology occupations currently is $88,240, which is much higher than the median annual wage for all occupations of $38,640 (BLS, 2020).

Of course, as educators, we do much more than prepare students only for the workforce. The importance of digital literacy is well documented. The use of technology in the classroom is nothing new in the educational setting, but giving every student a computer is not learning. Similarly, expecting a classroom teacher to understand the benefits or be comfortable with these devices and asked to enhance the curriculum is not teaching. These digital literacy skills have become increasingly important in the classroom due to society's ever-changing climate and the use of technology (Mihailidis & Diggs, 2010). Mihaildis and Diggs (2010) continue to go on to describe what digital literacy is, "digital literacy skills refer to the ability to navigate multiple technological devices to access information quickly, collaborate with multiple individuals, and share findings with others. Digital literacy uses both cognitive skills and new technological skills to navigate the digital world." This project and Technology plan is precisely what the new objectives of the project aim to achieve. Simply adding technology to the classroom does not

make it better; understanding how to use and manipulate it does. This projects into the future for students in all fields and careers. Digital Literacy is becoming the groundwork for many schools and how they are implementing education in their districts.
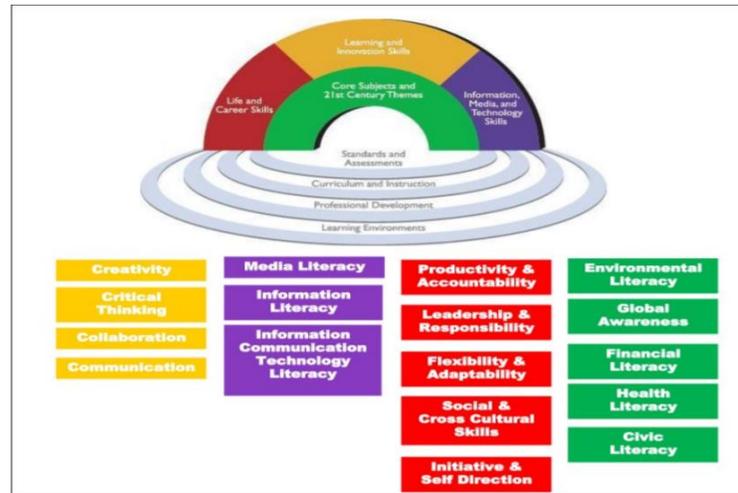

Figure 1: The 21st Century Learning Framework, Learning Outcomes and Support Systems, www.p21.org, 27-04-2017

Above is the 21st Century Learning Framework provided by Battelle for Kids, a national not-for-profit company attempting to collaborate with school districts around the country in promoting, enhancing, and fine-tuning the 21st Century learning styles. Gelen (2018) uses this to research what educators think the educational setting is moving towards. He also says, "In the educational environment of the 21st century, it is indicated that "practice, theory and technology" will be used in the forefront, "on the job" applied education will be increased." Throughout his research, he states that student-teacher relationships will continue to change (Gelen, 2018). Memorization will dramatically decrease from that of even ten years ago, individual work will decrease, and group work will significantly increase due to technology.

If Winona Area Public Schools is to prepare our students for the current and future workforce, we must create, foster, and mold them into this generation's workforce. This is not merely an issue for teachers currently employed; this is an issue at post-secondary institutions

preparing our future teachers. Serkan Dinçer (2018) did a study of teachers coming out of college; this is what he found, "although most of preservice teachers said they had knowledge, skills and positive attitude to use technology in teaching activities, the results revealed that they had a low level of technology literacy in terms of knowledge and skills." While the current generation (myself included) can manipulate technology better than previous generations, that does not mean we excel in using it or teaching it in our classroom. However, we expect our tenured classroom teachers to accept, use, and excel at teaching using technology. Dinçer (2018) concluded this, "The fact that preservice teachers didn't take any technology-related courses in their teacher training programs or they had such courses with insufficient contents was considered one of the main reasons for this low level. Therefore, courses about technology literacy must sufficient for teacher training." The need for a technology implementation program that is thorough, supportive, and cutting edge will not just help the senior staff members in our high school. It will impact every classroom teacher and educational assistant in the building.

That describes the long-term problem that school districts need to communicate to post-secondary education programs, but we need to focus on the teachers and the students we currently have in our building. Natalie Takacs (2017) studied the effective integration of technology into the classroom, "Researchers indicate that a lack of quality, effective professional development for teachers is a barrier to the successful integration of technology into the classroom… Teachers must assist students in achieving proficient use of technology in the elementary and middle grades if learners are to become active, responsible citizens who hold meaningful, productive jobs and contribute to the community." Technology is often seen as something that should be kept out of the classroom or seen as a hindrance to learning in today's youth. This technology is not the learning tools we should be using; technology goes beyond a

phone and a Chromebook, though they can be incredibly valuable learning tools. Takas (2017) goes on to say, "If teachers are to become proficient in technology and improve their ability to infuse technology in the curriculum, they will need to be offered extended, effective professional development in digital technology, many teachers feel unprepared to use technology effectively for classroom instruction." Teaching offers many variables and anxieties into the classroom for all involved, and if as a district we can limit this by a robust implementation of a technology plan, it will make the teaching and the quality of education within the school so much more meaningful.

The decision to implement this plan has multiple levels of support for our district as a whole. We must first create a curriculum that will fulfill all our students' needs, elementary to high school. To make sure this curriculum is taught and used correctly, we must use intentional, well thought out professional development to achieve this goal. According to Topper and Lancaster (2013), many school initiatives to gain ground simply because of funding. Many schools are heading or are already using a 1:1 curriculum, but what is next, "Those districts that fail to recolonize and plan for regular, relevant and ongoing teacher professional development are not likely to see widespread use or benefit for most students" in a one to one environment (p. 354). Like anything in education, time is essential, a teachers' knowledge of the devices is equally necessary. While education is generally behind when it comes to change, our district has already implemented technology integrationists' strategic placement to assist in the training and improvement of devices in the classroom. These positions provide some relief for classroom teachers, specifically technology-related uses, applications, and curriculum enhancements to educate the classroom teachers. With a team created, our district can have a technology goal,

plan, and cultivate continuing strategies for our students and teachers to become successful in using technology.

Chapter 3

Project Description

Technology in the classroom is not going away; it will only become more complex, enhanced, and grow upon the current use. Therefore, as a district, one must become vigilant in learning these new technologies as they arrive and support the buildings' staff. Many approaches could solve this issue. A quick fix would be to create a referendum for technology in the classroom. Another solution would be to create professional development that all staff must attend; this could be a summer curriculum. A third solution would be to make technology integrationists select certain products they recommend and share them with the staff. However, these solutions are very short-sided and do not address the real issue of technology in the classroom. Referendums are very hard to pass if there is no support from the community and a plan to sustain the referendum usage. Forcing professional development on staff is generally not a great practice, as many teachers will find the material interesting. However, they cannot see how it benefits them in the classroom or their students. Putting the technology integrationist on the task of selecting specific devices or application is a great start. However, staff may find the practicality of the suggestions difficult if no one is using them currently in the building.

My research will try to explain how technology and applications are currently used in the Winona Senior High school classroom, then put together a plan or program to foster better practices to make technology more organic in our building. An anonymous survey will gather information about teachers' classrooms in our facility to understand our staff's current usage and comfortability with technology. This survey will cover a broad range of questions such as years

worked in the district, current usage of technology and applications, where they would place themselves on the technology adopter curve, as well as seeing how they would feel about sharing their everyday use of technology to the rest of the staff for future professional development opportunities.

A Google Form will be the collection method for this information. The anonymous survey results will be housed on a school-issued computer with a secure login for Google; the information will be kept confidential and used only for the basis of my school plan moving forward.

The data analysis will be used to break down our strengths and weaknesses as a staff with current usage of technology and applications, the age of which these members fall, how likely they are to use and adapt current practices with the usage of new technology and applications and the likelihood they would provide potential future professional development for our staff.

Chapter 4

Results

Next are the results from the anonymous survey of the Winona Senior High School staff; the information will help direct the final plan for our school and be the basis of that plan. The analysis will allow for background, reflection, and guidance for future programs in our building. The survey will be sent to 52 staff members, which make up the Winona Senior High school and the Winona Area Learning Center staff. This number includes core classroom teachers, special education teachers, and technology integrationists. Of the 52 staff members asked to take the survey, 28 responded, or 54% of staff.
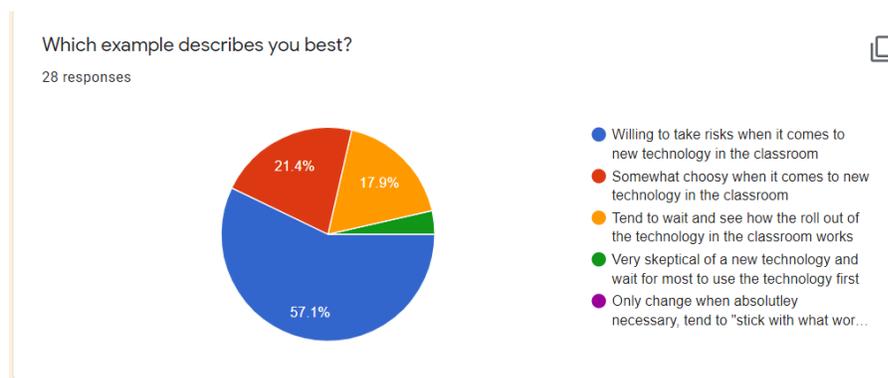
How many years have you been teaching?
28 responses
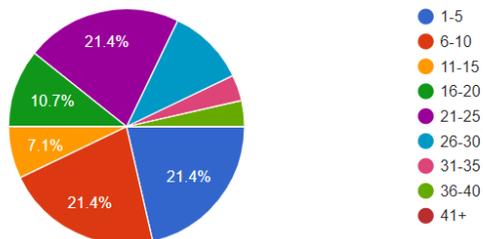
This question is essential to the research simply because age is said to affect or be the main reason teachers do not use technology. The years of teaching can help us understand where
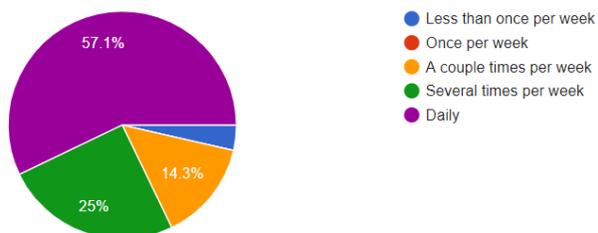
we are in our building. As the chart shows, we have a wide variety of tenure that took the survey.

Looking forward, it is necessary to see where our staff is regarding the willingness for technology in the classroom. These segments come from the Technology Adopter Curve made famous by Everett Rogers, a communication professor who popularized the theory called, Diffusion of Innovations. Where he found that there were specific categories that people fell into or "adopted." From Rogers book, "The characteristics that determine the rate of adopting an innovation are • relative advantage, the degree to which an innovation is perceived as better than the idea it supersedes; • compatibility, the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters..." (Rogers, 2003). The majority of the staff who participated in this survey responded favorably to the idea or the willingness to adopt technology into their classroom. Our school should be at the cutting edge of using these resources, but I do not see that there must be a more significant issue. The chart below gives us a good look at how often our staff uses technology in the classroom. The majority of our staff is using technology daily or several times a week. Which leads us to the next question, if our staff is willing to adopt technology into the classroom and already has, why are we not seeing a transformation of the curriculum or a more robust skill set of technology and applications in our students?
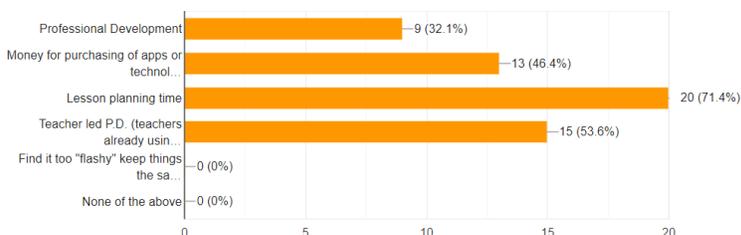
Do you use technology in the classroom?
28 responses

- Less than once per week
- Once per week
- A couple times per week
- Several times per week
- Daily

57.1%
25%
14.3%

This question becomes much clearer with my next question, in which I was very

interested to see the results. An overwhelming majority of our staff (71.4%) say the most

significant need for using these enhanced technologies or applications is lesson planning time.

Which makes sense; if the teacher is not comfortable, it will not be used properly or used to its

full potential. The number 2 and 3 issues when using technology in the building to our staff are

our staff would like teacher-led professional development (53.6%) and worry about the price tag

that comes with these innovations in the classroom (46.4%). This may be the most valuable

information that this survey or research has found. To better our students' curriculum, we need to

figure out the issues stalling our classrooms and technology enhancement.

What is your biggest need when it comes to technology usage in the classroom? (check all that apply)
28 responses

- Professional Development — 9 (32.1%)
- Money for purchasing of apps or technol... — 13 (46.4%)
- Lesson planning time — 20 (71.4%)
- Teacher led P.D. (teachers already usin... — 15 (53.6%)
- Find it too "flashy" keep things the sa... — 0 (0%)
- None of the above — 0 (0%)

My survey's final question was to find out the likelihood of our staff to teach what they

are doing in the classroom to others in the building. Often, the staff is doing wonderful things in

the classroom, yet we are not sharing with the rest of the building. This survey found that most of

our staff would be willing to share the use of quality technology in the classroom with their peers (64.3%). This finding should be used to the district's advantage and the building. An organic, staff-led professional development will make the learning that much more meaningful to the rest of the staff. If there is ever a problem in a classroom, the most comfortable teacher with that technology or the "leader" can take point on troubleshooting, tips, and tricks.

Would you be willing to teach other staff on apps/how you are using a device if given the time?

28 responses

- Yes
- No
- Maybe

10.7%
25%
64.3%
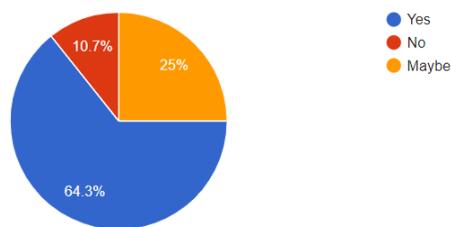
Chapter 5

Discussion and Conclusions

The idea that I find most beneficial and practical in the Winona Area Public Schools is to create a team of educators that help identify the staff's needs, new technology, and the transfer of knowledge from one colleague to the next. This solution's benefit has many levels; it incorporates multiple levels of the school, teachers, educational assistants, administration, and technology integrationist. Secondly, it will allow multiple people to source information about the next best technology in the classroom or the application's practicality in our building. Thirdly, it would encourage an organic teacher transfer of knowledge process where others could learn from those they trust and see the current use in the building. Below are the project details and the plan set forth for the Winona Area School District, specifically focusing on the Winona Senior High. Implementing a technology implementation team would provide focus, guidance, and knowledge of current best practices of using technology in the classroom. It can also inform current staff, community members, and students about the practicality and cost of using the technology and applications. Below is the goal statement, objectives, and how each would be measured.

Courses at Winona State University like Communications, Systems Thinking, and Change Leadership have all benefited this research and my overall leadership goals. Before the Leadership program I would have never considered the multiple levels, styles, and structures of the school system. One cannot look at one classroom or teacher, however to incorporate a full system change you must identify the problem, create the solution and try and plan for the unintended consequences. Communications has taught me the valuable lessons of creating a stakeholder matrix to ensure all necessary stakeholders and considered and invited to the table in

order to better serve the district. This is incredibly important to the success of any program, but it is the most important to the success and health of the district. Leadership can be defined many different ways, but the course Change Leadership has really pushed me to define my leadership goals and strategies as well as be introspective and look at actions, words and relationships as a whole. These courses define the program, but they push the student to become a better leader for the students in the classroom and the district as a whole. Below is the plan created to foster quality education, using technology that would then provide for organic growth in the district between educators.

Goal Statement:

The Winona Area Public School District will provide educators information and training about new technology and implementation strategies for the classroom to effectively address the students' technology education needs.

Measurable Objectives:

1. To establish a Technology Implementation and Development team made up of teachers, students, and members from all levels of the district (elementary, middle school, high school)

2. To develop a technology curriculum that meets the needs of staff and the needs of the students.

3. To implement and monitor staff technology development training.

4. To assess and evaluate staff technology development training.

Strategies and Tactics:

To achieve Objective #1, Winona Area Public School teachers will be asked for their involvement of the Technology Implementation and Development (TID) this will ensure that all levels (elementary through high school) including administration will be involved in the development of this curriculum. Students will be recruited to be a part of this team, ensuring that the focus is on their technology improvement.

To achieve Objective #2, the TID team will work cooperatively throughout the summer to create a viable technology curriculum based on assessed staff need for technology usage in their classroom.

To achieve Objective #3, the TID team will create a schedule that will allow for one staff development training per month throughout the school year. More staff development can be created as time and need dictates.

To achieve Objective #4, surveys will be distributed to staff who participated in staff development training. This assessment will solicit feedback about the quality, accuracy, and usefulness of the training program. The TID team will also create mentors who will monitor the progress of the implementation into the classroom.

Responsibility/Accountability:

OBJECTIVE	TASK	RESPONSIBILITY	TIMELINE
To establish a Technology Implementation and Development team made up of teachers, students, and members from	Emails/discussion with staff will be communicated to staff and announcements will be made for students for opportunities to be a part of the Technology	-Attend technology professional development trainings, creating best practices and a curriculum that will be used throughout the school district	Start: Summer of 2021 End: Teacher workshop 2021 (year one)

each district level.	Implementation and Development team.		
To develop a technology curriculum that meets the needs of staff and the needs of the students.	The Technology Implementation and Development team will create a vibrant curriculum that will be used and grown from elementary to secondary.	- Members will simplify technology practices used from professional development trainings - Create staff development trainings for district staff, based on comfort/skill of the technology being used - TID team will continue to create/change curriculum around the data they receive relating to the needs of staff and students.	Start: Summer of 2021 End: Teacher workshop 2021 (year one)
To implement and monitor staff development training.	Staff Development (PD) meetings will be held once a month (more if needed) at the high school in the Multi-purpose room, or teacher classrooms.	- TID team will contact staff with reminders of technology trainings, which staff can attend at their discretion.	Start: 2021-2022 school year
To assess and evaluate staff development training.	-The TID team will create a survey to send to staff to find what was good about the technology training sessions and use of technology mentors and what are needs going further. -The TID team will also create a survey for students regarding the use of technology in their classrooms and what needs still need to be met.	- TID team creates survey for district staff. - TID team will send out survey to staff. - TID team will go through data to make recommendations for further staff development training. - TID team will send out survey to staff. - TID team will go through data to make recommendations for further staff development training.	Start: May 2021 End: Teacher workshop (final day)

Resources Needed:

Resources	Cost Per Resource	Total

Technology Implementation and Development Team Training	Selected conference cost (times number of participants)	To be determined
Technology Programs/Tools	Determined technology devices, tools, curriculum	To be determined

Measurement:

Achievement of Objective #1 will be determined by establishing the Technology Implementation and Development team that consists of staff and students of each district level.

Objective #2 will be determined by creating a staff development technology curriculum based on assessed staff need and accurate information about the students' need for technology education.

Achievement of Objective #3 will be determined by implementing monthly staff development workshops and feedback from technology mentors.

The achievement of Objective #4 will be determined by 80% response to the training feedback surveys from staff who attended two or more workshops and 80% response to the technology used in the classroom by students.

This project is a passion of mine and something I hope to bring to my district and create meaningful change with our curriculum. The use of technology, such as devices and applications, is not going away. To better prepare our students for the workforce, we as a building and district need to prepare ourselves better. Teachers need to be more comfortable using these devices and seamlessly integrate them into their lesson plans, but this will not happen until the district allows for meaningful professional development. More importantly, a taskforce that can find best practices find and secure funds and then educate other staff members and show them how it fits into their curriculum. I have used the term organic many times in this document, and I genuinely believe that if you want this to work, you need to give teachers more time to play. It would be

best if you gave them time to experiment with different devices, see how it fits into the curriculum, give them planning time for their lessons and then teach it to colleagues in the building, this makes the learning much more real and practical.

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