

An Investigation into the Implementation of Wales ' Digital Competence Framework (DCF): Teacher Perspectives and Classroom Practice in Media Literacy Education

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Introduction

What is happening to children today and what pressures do they face from their peers, the Internet and social media? This is a question that deserves deeper reflection by educators and policy makers around the world. With the rapid development of Internet technology, young people have become deeply integrated into the digital world. Their behavioural patterns, values and social relationships are being reshaped as never before, often without their parents and teachers knowing anything about it or even being able to do anything about it. Although education systems differ from country to country, the international community needs to address and respond to the digital ecology of young people in the face of similar information environments and social challenges.

According to a report released by Ofcom in 2023, approximately 89% of teenagers aged 13 to 17 spend an average of 1 hour and 34 minutes on TikTok daily; 81% of them also spend an average of 58 minutes on Instagram each day. This data is a microcosm of global teenagers' use of digital media. The Internet not only profoundly influences teenagers' information acquisition habits but also increasingly becomes an "information cocoon", further magnifying social contradictions such as gender opposition and class solidification in the real world.

Against this backdrop, the importance of media literacy education has become more and more important. Particularly at a time when information pollution is rife and social media platforms are flooded with fake content, there are key questions about how the education system can help young people to identify, filter and critically evaluate online information. This study focuses on the Welsh education system and the extent to which the Digital Competence Framework (DCF) is able to improve the digital information processing skills of 11-16 year olds, and how teachers implement this policy in practice. this policy.

Chosen Methods

Theoretical Framework

This study adopts an interpretive paradigm with constructivism as the epistemological framework.

Firstly, this research aims to explore the understanding and real experiences of teachers and students regarding media literacy education in Wales within the framework of the Digital Competence Framework (DCF). This aligns with an interpretivist approach that emphasizes how individuals construct meaning in specific social contexts while highlighting the importance of subjective experiences (Schwandt, 1994). Consequently, interpretivism is selected as a suitable philosophical paradigm for this study.

Secondly, the social constructivism underpinning this research asserts that knowledge is co-constructed through social interactions within particular contexts rather than existing objectively (Vygotsky, 1978). This perspective resonates with the developmental process reflected in DCF educational practices aimed at enhancing adolescents' media literacy skills through teaching. Therefore, a social constructivist framework is employed in this study to gain deeper insights into the experiences of teachers and students during DCF implementation.

The choice of mixed-methods

This study will combine qualitative and quantitative research using the Mixed-Methods approach to explore in depth the effectiveness of media literacy education for 11-16 year olds within the framework of digital competence in Wales, using both teacher perspectives and classroom practice.

According to Johnson, Onwuegbuzie and Turner (2007), we can determine that Mixed-Methods research is a type of research that combines elements of qualitative and quantitative research, aiming to achieve a wider and deeper understanding through different sources of data and analytical perspectives. The mixed research approach not only ensures the comprehensiveness of data collection and analysis but also enhances the persuasiveness of the research findings due to its multi-dimensional corroborative power.

When Bryman (2006) examined the reasons for employing mixed research methods, he provided well-reasoned explanations across multiple dimensions. Specifically, the concepts of "credibility" and "illustration" are particularly pertinent to the context of this study.

1. Credibility

By combining quantitative and qualitative data, mixed methods can compensate for the potential bias of a single method and improve the overall credibility of the findings (Bryman, 2006). For instance, Quantitative questionnaires will reveal general trends in self-assessed levels of digital competence and social media use behaviours among 11-16 year old Welsh adolescents; qualitative interviews will dig deeper into teachers' specific experiences and observations of implementing DCF policies in the classroom, complementing the contextual interpretation of the questionnaire data. The mutual validation and cross-analysis of the two types of data will enable more

credible conclusions to be developed, avoiding the one-sidedness associated with a single data source (Creswell & Plano Clark, 2011)

2. Illustration

Mixed methods can also concretise and contextualise quantitative findings through qualitative data (Bryman, 2006). For instance, Even if survey data show that most students self-report high levels of numerical competence, teacher interviews may reveal blind spots behind these 'high self-assessments', such as the lack of practical application of critical thinking; Such complementary analyses can give rich educational meaning to abstract statistical results, revealing the mechanisms and processes behind the changes (Tashakkori & Teddlie, 2010).

It is important to acknowledge that the use of mixed research methods inherently introduces certain challenges. These include additional considerations, such as the sequencing of quantitative and qualitative research in mixed studies (e.g., whether the data are collected simultaneously or sequentially) (Morgan, 1998; Morse, 1991). Furthermore, the dual collection of data sources adds complexity to data management and analysis, potentially creating stress and inefficiencies, particularly within the constraints of a time-limited study. To mitigate these issues, the challenges can be minimized by strategically planning the research process to collect quantitative and qualitative data concurrently. This can be achieved through

the optional use of electronic questionnaires or online interviews to save time, while also leveraging standardized data management tools to enhance analytical efficiency.

Sampling

This study will respectively take Welsh school adolescents aged 11 to 16 and teachers who have implemented and participated in the Digital Competence Framework

Adolescents aged 11 to 16

In line with the objectives of the research, this study was conducted with adolescences in school in Wales and there are three reasons for choosing 11-16 years as the specific age group:

Consistent with the scope of application of the DCF policy

It is noted in the design of the Welsh Curriculum, which integrates the DCF framework, that the curriculum is structured around the principle that learners will progress along a continuous learning pathway within each Area from ages 3 to 16. Consequently, the age range of 11-16 corresponds to the later stages of development within the education system at Key Stages 3 and 4, making the use of young people in this age group as research participants particularly timely and relevant.

The sign of the formal operational stage

In addition, adolescents between the ages of 11 and 16 were selected for this study based on the characteristics of this age group in terms of cognitive development and media literacy education. According to Piaget's theory of cognitive development, children at the age of 11 enter the stage of formal arithmetic. They can think about hypothetical situations and various possibilities, such as situations that do not yet exist, may never exist, or may be unrealistic and fantastical. As a result, young people aged 11 and over have more mature cognitive abilities and critical thinking skills to understand concepts related to digital skills and media literacy than their younger counterparts. They are also more likely to express analytical views in questionnaires or interviews, which is conducive to an in-depth discussion of the actual effectiveness of the DCF in developing youth media literacy skills.

The feasibility of practice

According to the Education Act 1996 in England (including Wales), education is compulsory for children aged 5–16 years. In Wales, schoolchildren aged 11–16 are enrolled in compulsory schooling, with their daily learning and school life being uniformly managed by the educational institutions. During the study implementation phase, selecting pupils aged 11–16 as the study population facilitates data collection via the school channel, provided that informed consent is obtained from parents or guardians, in accordance with ethical

guidelines. Thus, utilizing Welsh school youths aged 11 – 16 as one of the research subjects ensures high relevance and accuracy of the data, thereby providing a robust foundation for evaluating the effectiveness of the DCF's practical implementation and its influence on the development of young people's media literacy.

Teachers

As the actual implementers of DCF, teachers are an important participant group in this study. Firstly, teachers connect the curriculum framework with classroom practice based on their own experiences and perspectives, and reveal the real advantages and disadvantages in the practice of DCF.

Secondly, teachers' viewpoints can complement the feedback from students' perspectives, which is beneficial to establishing a more comprehensive understanding of the educational practice effect of DCF in this study. The teacher sample of this study will cover the teachers of relevant courses in primary and secondary schools implementing the DCF framework in Wales, and will be selected through purposive sampling in primary and secondary schools that meet the requirements in Wales. The student sample will be selected through the convenience sampling method with the assistance of the cooperating schools and teachers.

Research Tools

This study utilizes a mixed-methods research approach, combining both qualitative and quantitative methodologies. Specifically, data were collected through interviews with teachers and questionnaires administered to adolescents aged 11 to 16 years. This multi-faceted approach aims to accurately depict the impact of the Welsh Digital Competence Framework on media literacy education.

Qualitative research tool: Teacher interviews

Purpose

Interviews were conducted with frontline teachers involved in the implementation of the DCF policy in this study to explore their specific practices, genuine feelings, and reflections within the realm of media literacy education. As Cohen, Manion, and Morrison (2018) argue, interviews are an effective methodology for capturing participants' subjective experiences, perspectives, and complex interactions in classroom settings. This approach is particularly suitable for examining the micro-differences and dynamics inherent in educational practice. Consequently, the study gathered insights into teachers' experiences regarding the implementation of DCF and media literacy education through interviews. This allowed for the identification of discrepancies between policy design and pedagogical practice, as well as the

challenges and needs teachers encounter when conducting media literacy education, thereby providing actionable recommendations for further optimizing DCF in Wales.

Participants

The research plan will invite 3 to 5 in-service teachers from different educational stages in Wales for interviews through purposive sampling. The in-service teachers should cover different subject backgrounds as much as possible, including but not limited to ICT, to ensure the completeness of the content and the diversity of the samples.

Interview design

Format: Semi-structured interview guided by a set of pre-defined questions, with the flexibility to explore follow-up topics during the conversation. Conducted either face-to-face or via video call (Zoom/Teams), depending on the interviewee's availability and work location.

Duration: Each interview lasts approximately 20-30 minutes.

Core questions: Have you received specific instructions to incorporate Digital Competence Framework (DCF) into your classroom teaching? How is media literacy education conceptualized, and what is the relationship between it and DCF? In what ways has DCF been integrated into the teaching and learning

process? Are there examples of successful or effective practices that can be highlighted? What challenges have arisen during the implementation of DCF?

Potential problems: Interview results may significantly deviate from expectations; the sample size may be limited and insufficient due to the small number of participants, etc.

Quantitative research tool: Questionnaire survey for adolescents aged 11-16

Purpose

The use of a questionnaire in this study was designed to quantify current levels of self-assessed media literacy competence and digital competence among 11-16 year olds in Wales, as well as feedback on the DCF programme received at school. Questionnaires that are structured survey instruments are effective in collecting standardised data from groups of a certain size in order to obtain trends and patterns, thus facilitating the collection of quantitative evidence for education policy (Crewel, 2014).

Participants

The research plans to collect 15 to 20 questionnaires, targeting students aged 11 to 16 studying in Wales. The questionnaires will be collected either online or offline, through school channels or in collaboration with teachers

participating in interviews, with the informed consent of legal guardians and the voluntary participation of the students themselves.

Survey design

Form: the questionnaire was prioritised as an electronic questionnaire (Microsoft forms/Goggle forms) due to environmental and convenience reasons.

Questionnaire content: The questionnaire for this study was designed in accordance with the Digital Competency Framework: a guide to learning pathways published by the Welsh Government (Welsh Government, 2022), and was structured around the key areas of digital competency defined in the framework (e.g. critical appraisal of digital content, safe online behaviours, and effective digital communication skills) to ensure a high degree of consistency with the DCF's policy objectives.

Types of questions: single choice, multiple choice, Likert scale and a small number of open questions.

Number of questions: To ensure that students could complete the questionnaire within 15 minutes, therefore the number of questions was limited to 15-20.

Design principles: The language of the questionnaire was designed to be age-appropriate for the respondents, avoid leading expressions, and be concise and easy to understand.

Potential problems: The return rate of the questionnaire is lower than expected; the questions are not formulated neutrally enough leading to biased results.

By integrating teacher interviews with adolescent questionnaires, this study can form multi-dimensional data mutual verification between educational implementers and learners, which not only ensures the credibility of the research but also enriches the illustration of data interpretation, conforming to the theoretical requirements of mixed-method research.

Ethical Considerations

As the two participating groups involved in this research are 11-16-year-old school students and teachers in Wales, the special nature of minors' participation and teachers' professional identity requires careful planning of ethical and moral issues before the research is carried out. This study adheres to the ethical practice guidelines of the British Educational Research Association (BERA) and UWTSD, integrating ethical principles into all stages of the research to ensure that the legitimate rights and interests of all participants are not infringed upon during the research process.

1. Adolescences(11-16)

The participant group of adolescents aged 11-16 years involved in this study are minors and therefore ethical guidelines for working with minors should be strictly adhered to in the study. Prior to data collection, consent should be obtained not only from the students themselves to ensure voluntary participation, but also from their parents or legal guardians for informed consent. Also prior to the commencement of the study, all adolescent participants will be provided with an information sheet which clearly describes the purpose, process, and potential risks of the study and in which it is clearly spelled out that they have the right to withdraw from the study at any time in the middle of the study without any form of constraints.

The study will be conducted strictly under the supervision of the school and teachers, and anonymous data collection (questionnaires) will be carried out with students in a familiar, safe and open environment. No personally identifiable data will be collected and labelled during this process. As the research topic may involve the experience of using the internet, including sensitive topics such as cyberbullying, less sensitive topics will be designed into the research process to avoid causing potential psychological risks to participants.

2. Teachers

Although teachers, as adults, are capable of independently providing consent for the study, it remains crucial to ensure that informed consent is obtained from all participants. This involves thoroughly explaining the principles of anonymity, voluntariness, and the secure handling of data associated with study participation. During the study, the location (online or offline) and timing of the interviews were flexibly arranged, taking into account the unique characteristics of the teaching profession, the professional environment in which teachers operate, and the convenience of the interviewees. The collected interviews were anonymized and systematically numbered, with any personally identifiable information removed to safeguard the professional privacy of the teachers.

3. Contribution to the Well-being of Future Generations (Wales) Act 2015

This research follows the principles established by **the Wellbeing of Future Generations in Wales Act 2015** and supports the following national wellbeing objectives:

A Prosperous Wales: by examining the implementation of media literacy education under the Digital Capability Framework, the study aims to promote the enhancement of pupils' digital skills and critical thinking, which benefits

Welsh young people's learning and their future employment, both of which are closely linked to the prosperity of Wales.

A Healthier Wales: Focusing on and improving the media literacy of young people in Wales will help them to develop healthier digital habits, which in turn will improve their physical and mental health by, for example, increasing their ability to scrutinise information on the internet.

A More Equal Wales: This study will cover a number of schools in Wales, gathering the views of teachers and pupils from different school environments on media literacy education, to highlight potential differences in the development of media literacy education, and to promote greater equity in digital literacy education in Wales.

A Globally Responsible Wales: critical digital citizenship can be enhanced through the development of media literacy skills amongst young people in Wales. This study may better facilitate the development of Welsh adolescents as responsible participants in the global digital society.

Data Analysis Methods

This study will follow the overall approach of mixed-methods research and answer the research questions by combining quantitative data analysis with qualitative data analysis.

Quantitative Data

The study will process and analyse the quantitative data collected from the students' questionnaires with the help of SPSS statistical software, including descriptive statistics, calculating metrics such as mean and standard deviation, and summarising the level of digital competence, social media use, etc., as a way of depicting the basic characteristics of the samples in the study, and revealing the comprehensive level of media literacy competence of the youths aged 11-16 in Wales at the present time; and correlation analyses, which are Data analysis is used to further explore possible underlying relationships between variables, such as exploring the correlation between receiving DCF education and self-assessed media literacy competence in the study as a way of explaining the link between educational interventions and students' competence.

The quantitative approach to data analysis allows for an assessment of the state of digital competence development amongst young people in Wales and the identification of factors influencing it, thereby optimising the effectiveness of DCF's educational practices.

Qualitative Data

The qualitative data collected through semi-structured interviews with teachers will allow for a deeper dive into the actual experiences, classroom practices and the differences and complexities of policy making that teachers

encounter in implementing DCF policies, as well as identifying similarities and differences between different teachers, so the study will adopt a thematic analysis approach and follow the six-stage process proposed by Braun and Clarke (2006):

1. repeated reading of the interview transcripts to familiarise with the content of the data;
2. systematically generating initial codes;
3. searching for potential themes and categorising relevant codes;
4. reviewing themes to ensure that they are internally consistent and distinguishable from each other;
5. defining and naming themes to accurately capture the core meaning of the themes;
6. Write an analytical report, linking the themes back to the research question for in-depth interpretation.

Integration of Findings

In order to enhance the validity and coherence of the results, the results of the quantitative and qualitative analyses will be integrated through triangulation. This integrated analysis will juxtapose statistical trends with insights derived from thematic analyses, ensuring that conclusions are comprehensive and supported by multiple data sources.

For example, while quantitative data suggests that students who have received media literacy education based on the DCF framework demonstrate

higher levels of critical assessment skills on self-assessments, qualitative data can further provide context-specific explanations, such as effective instructional strategies adopted by teachers in the classroom or challenges encountered in the practical application of the DCF.

This mixed-methods integration strategy helps to strike a balance between the breadth of the study (large sample data trends) and the depth (specific practice experiences and reflections), taking full advantage of the complementary strengths of quantitative and qualitative methods.

Conclusion

This study explores how the Digital Citizenship Framework (DCF) can be implemented in Welsh schools to cultivate media literacy among young learners. By integrating the perspectives of both teachers and students, it aims to clarify effective practices and potential areas for improvement, contributing to the ongoing discourse on digital competence education in the 21st century.

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