Nordic Journal of Educational History
Vol. 10, no. 1 (2023), pp. 3–26
ISSN (online): 2001–9076
ISSN (print): 2001–7766

Educational Devices: Debates and Endeavours within the Swiss Teachers' Association SLV, 1950–1980

Jeannine Erb & Michael Geiss

Abstract • This article examines how and why elementary and lower secondary school teachers in Switzerland constructed audio-visual media as educational devices. The new technical solutions had to be interpreted and adapted so that they could be considered educational. The educational press and internal minutes of the Swiss Teachers' Association SLV show the public discussions as well as internal conflicts. They allow conclusions to be drawn about the role of the teacher association in constructing educational media. They also show the part played by political and practical issues in the evaluation and development of educational media. The article ends with a conclusion that outlines the different ways in which Swiss elementary and lower secondary school teachers dealt with new teaching media.

Keywords • teachers, audio-visual media, educational history, artifacts

Introduction

Historical research in education has long supported the idea that teachers have been reluctant or critical of new teaching technologies. According to Larry Cuban, the historical nature of teaching is characterised by a "cautionary attitude toward change,"[1] since teachers are not willing to give up teaching routines they have established over a long period of time. Cuban likewise claims that teachers usually feared for the interpersonal relationships in the classroom, which can be disrupted by technological tools. In addition, they preferred familiar teaching aids such as the textbook because, on the one hand, it was more compact, flexible and durable and, on the other hand, it could answer pedagogical problems more satisfactorily and more specifically than, for instance, film projectors, radio, or school television.[2]

However, recent research focusses less on how teachers have resisted new teaching media and more on how they have adopted and combined them as educational devices[3] or even been the driving force behind the development and implementation of new tools and technical approaches.[4] The present article builds on this research by examining how teachers constructed audio-visual media as teaching aids in the second half of the twentieth century. It examines the Swiss Teachers' Association SLV (*Schweizerischer Lehrerverein*) as a specific context in which teachers discussed new

1 Larry Cuban, *Teachers and Machines: The Classroom Use of Technology since 1920* (New York, New York: Teachers College Press, 1986), 60.

2 Ibid., passim.

3 Katie Day Good, "Making Do with Media: Teachers, Technology, and Tactics of Media Use in American Classrooms, 1919–1946," *Communication and Critical/Cultural Studies* 13, no. 1 (2016), 75–92.

4 Katie Day Good, *Bring the World to the Child: Technologies of Global Citizenship in American Education* (Cambridge: The MIT Press, 2020); Joy Lisi Rankin, *A People's History of Computing in the United States* (Cambridge, Massachusetts: Harvard University Press, 2018).

teaching tools and developed or transformed instructional media.

The SLV is the largest and most influential national interest organisation for elementary and lower secondary teachers[5] in Switzerland and thus represents a large part of the teachers' community. Regarding the introduction and implementation of new educational devices, the SLV served as an organ of interest articulation and coordination. It mediated different teachers' stances and attempted to transform them into a communicable position. At the same time, the association had to ensure that its position on new instructional media could be communicated to its professional audience, the teachers in Switzerland's schools and classrooms. New teaching aids had to be interpreted and adapted so that they could be considered educational.

Audio-visual educational devices included a whole range of different tools—visual, auditive, or both—that could be used for teaching and that were intensively promoted and discussed in educational publications and the teachers' press. They comprised technologies ranging from simple tape recorders to overhead projectors, room-scale speech laboratories and school television.[6] Audio-visual educational devices were part of what in the second half of the twentieth century has been more generally discussed as "multimedia," "a flexible and futuristic descriptor for a range of efforts to make formerly discrete media apparatuses both more ubiquitous and fluidly integrated into various spaces, processes, and sectors of society."[7] In this article we show debates and endeavours within the SLV in relation to specific audio-visual media, namely diapositives and transparencies, but also school television and educational film.

After an overview of the state of research on the history of educational media and a chapter on the methodological approach and the sources used, we first present the SLV and its bodies. We then focus on the discussions on audio-visual media that took place in the minutes of the various bodies. In particular, we make known two study groups within the SLV that edited, created and promoted their own audio-visual teaching media and show the reasons for which these study groups were founded and how and why they advocated for the development and use of new teaching materials. Since we have also examined lines of argumentation in relation to school television and educational film, we can outline what the SLV basically attached importance to in dealing with the new media and where and why internal tensions also arose.

Subsequently, we reconstruct how the teachers within the large association were concerned with audio-visual media in the second half of the twentieth century and how the SLV finally helped to understand the new technologies as educational artifacts. The article ends with a conclusion that outlines the different ways in which Swiss elementary and lower secondary school teachers dealt with new teaching media.

5 Upper secondary school teachers are not included here.

6 Elisabeth Jean-Richard, "Die audio-visuelle Methode im Unterricht," *Schweizerische Lehrerinnen-Zeitung* 72, no. 1–2 (1968), 15–17; Hans Ryf, "Der audiovisuelle Unterricht und seine Kehrseite," *Schweizer Schule* 57, no. 2 (1970), 68–71; Franz Kaufmann, "Die Wirksamkeit audiovisueller und konventioneller Fremdsprachmethoden," *Schweizer Schule* 58, no. 1 (1971), 14–18; Christian Doelker, *Didaktik und Methodik der audiovisuellen Mittel* (Zürich: Orell Füssli, 1971); Hans W. Hunziker, *Audiovision im Unterricht: Handbuch der Lerntechnologie (1981/82)* (Zürich: Transmedia, 1981).

7 Katie Day Good, "Multimedia: How Educators Made Sense of New Media Multiplicity," in *Digital Roots*, ed. Gabriele Balbi, Nelson Ribeiro, Valérie Schafer, and Christian Schwarzenegger (Berlin: De Gruyter, 2021), 59–76.

Previous research

Until recently, instructional media and educational technologies had a niche existence in historical research.[8] This has now changed drastically. Meanwhile, numerous monographs are devoted to various aspects of the historical development of educational media, especially in the twentieth century, with a particular focus on the United States.[9] Furthermore, other case studies and the transnational dimension of the invention and dissemination of educational technologies are also receiving increasing attention.[10] In 2022, the International Standing Conference for the History of Education (ISCHE) was entirely dedicated to the topic of educational media and technologies.[11]

More recent historiography has explicitly addressed the complexities behind the development, discussion and implementation of instructional technologies and educational media. Their story is not just about the extent to which they could fit into established routines of teaching or how teachers reacted to them. The "grammar of schooling"[12] was only one factor among several concerned with the failure of many innovations. Audrey Watters, for example, has shown that it was the companies that tended to be reluctant when they did not see an outlet for the new products. High costs, logistical or technical issues, inappropriate content and misunderstandings, or more accessible, alternative teaching tools have been reasons for certain technologies failing.[13] Therefore, teachers have sometimes been unfairly scapegoated, when in fact it was industry that was responsible for slowing down or pushing forward a development.

Rankin has recently shown how important teachers or lecturers and students were in the development and spread of early computer use and the development of computer assisted instruction systems.[14] Good argues that teachers have not been fundamentally resistant to new teaching media, but rather to a system imposed by external agencies that was oriented towards modernization and mechanization.[15] She suggests that

8 Cuban (1986); Paul Saettler, *The Evolution of American Educational Technology*. [Rev. ed.] (Englewood, Colo.: Libraries Unlimited, 1990); Larry Cuban, *Oversold and Underused: Computers in the Classroom* (Cambridge, MA: Harvard University Press, 2001); Stephen Petrina, "Sidney Pressey and the Automation of Education, 1924-1934," *Technology and Culture* 45, no. 2 (2004), 305–30.

9 Victoria Cain, *Schools and Screens: A Watchful History* (Cambridge: The MIT Press, 2021); Bill Ferster, *Teaching Machines: Learning from the Intersection of Education and Technology* (Baltimore: Johns Hopkins University Press, 2014); Good (2021).

10 Marcelo Caruso, *Geschichte der Bildung und Erziehung: Medienentwicklung und Medienwandel* (Paderborn: Ferdinand Schöningh, 2019); Rebekka Horlacher, "Bringing Pedagogy in Line: Globalizing Nationally Programmed Instruction, New Math, Film and Media Education," in *World Yearbook of Education 2022*, ed. Daniel Tröhler, Nelli Piattoeva and William F. Pinar (London: Routledge, 2021), 87–102; Barbara Hof, "From Harvard via Moscow to West Berlin: Educational Technology, Programmed Instruction and the Commercialisation of Learning after 1957," *History of Education* 47, no. 4 (2018), 445–65; Maija Runcis and Sandin Bengt, *Neither Fish nor Fowl: Educational Broadcasting in Sweden 1930–2000* (Nordic Academic Press, 2011).

11 The ISCHE conference 2022 has been held in Milan and addressed "Histories of Educational Technologies: Cultural and Social Dimensions of Pedagogical Objects."

12 David Tyack and William Tobin, "The 'Grammar' of Schooling: Why Has It Been So Hard to Change?" *American Educational Research Journal* 31, no. 3 (1994), 453–79.

13 Watters (2021).

14 Rankin (2018).

15 Good (2016).

proponents of new technologies focused primarily on the use of expensive and publicity-boosting instructional media such as radio, film and computers. Historical research often ignored the fact that teachers began to use other types of media that were just as novel, albeit less touted, in other words, "unnoticed or invisible, material things"[16]. These teaching aids, some of which were produced or modified by teachers themselves and which were easier to obtain and far more widespread, are therefore completely under-researched in comparison to film and school television.[17]

Caruso draws attention to the fact that before introducing instructional media into schools, it is not only technological issues that need to be considered, but also the impact on notions of learning and teaching.[18] Good traced how teachers in the United States in the first half of the twentieth century were exposed to numerous new technologies and then had to see for themselves how to integrate them in a meaningful way. As a result, teachers created an understanding of "multimedia"[19] for themselves. Like Rankin, Good also shows that teachers are not only affected by instructional devices and educational media but have agency themselves. The same can be shown for the early implementation of computer science courses, where teachers and lecturers had a special role as pioneers and promoted the entry of computers into the classroom. [20]

For Switzerland, there are now numerous historical studies on the introduction of new educational media and technologies in the twentieth century. These studies range from behaviourism and programmed instruction to language laboratories and teaching machines.[21] Horlacher also used the example of the emergence and development of the so-called "audio-visual central office" in Zurich to show how film education in schools was debated in Switzerland in the 1960s and what was expected of it. She also examined how teachers in Zurich were addressed by educational stakeholders and how they reacted to the new educational media. The present article follows on from this research, but places the teachers, their interests and perspectives, at the centre of the historical analysis.[22]

16 Ibid., 77.

17 Good (2020).

18 Caruso (2019).

19 Good (2016).

20 Dominique Felder, *L'informytique ou l'invention des idées reçues sur l'ordinateur à l'école* (Genève: Service de la recherche sociologique, 1989); Lennart Rolandsson, "Teacher Pioneers in the Introduction of Computing Technology in the Swedish Upper Secondary School," in *History of Nordic Computing*, ed. John Impagliazzo, Per Lundin, and Benkt Wangler (Berlin, Heidelberg: Springer Berlin Heidelberg, 2011), 159–67.

21 Andrea De Vincenti and Andreas Hoffmann-Ocon, "'Technologische Lenkungsversuche," in *Ambivalenzen des Ökonomischen: Analysen zur "Neuen Steuerung" im Bildungssystem*, ed. Martin Heinrich and Barbara Kohlstock (Wiesbaden: Springer Fachmedien, 2016), 73–96; Anne Bosche and Michael Geiss, "Das Sprachlabor: Steuerung und Sabotage eines Unterrichtsmittels im Kanton Zürich, 1963–1976," in *Deutsche Gesellschaft für Erziehungswissenschaft – Historische K. Jahrbuch für Historische Bildungsforschung,* ed. C. Berg (Bad Heilbrunn: Klinkhardt, 2011), 119–39; Daniel Deplazes, "'Balance of Mind […] Seems More Necessary than the Promotion of Teaching Machines' – Technology in Swiss Schools in the 1960s," *IJHE Bildungsgeschichte* 10, no. 1 (2020), 42–63; Rebekka Horlacher, "The Implementation of Programmed Learning in Switzerland," in *Trajectories in the Development of Modern School Systems: Between the National and the Global,* ed. Daniel Tröhler and Thomas Lenz (New York: Routledge, 2015), 113–27.

22 Rebekka Horlacher, "Wie Film und Fernsehen in die Schule kamen. Die 'audiovisuelle Zentralstelle' für die Schulen des Kantons Zürich und deren Weg zur 'Fachstelle für Medienpädagogik'," in *Der*

Based on the state of the research, it is important to keep in mind the often demonstrated agency of teachers with regard to new technologies and technical teaching aids. Teachers not only react or resist, but are involved in the development, implementation, and integration of new educational devices. In doing so, they find themselves in a field of tension between political or public expectations, commercial interests, scientific debates, and professional self-conceptions. For the history of educational media, this means that teachers always have to position themselves and that their role is by no means predetermined. On the contrary, it is to be expected that they neither represent uniform interests nor position themselves in the same way towards the wide array of available new media and teaching aids. In order to be able to work with technical tools and integrate them into their professional self-image, teachers first had to construct them as educational devices.

Method and sources

The focus of this historical study is particularly on the role of a large teachers' association in the discussion, development and implementation of educational media. We will thus reconstruct how the most powerful interest organisation of Swiss elementary and lower secondary school teachers was actively involved in the shaping and introduction of the new audio-visual media. We mainly look at diapositives as well as transparencies and overhead projectors, since the SLV had set up separate study groups for these teaching aids. The audio-visual media of school television and educational film were only marginally dealt with by the SLV in the minutes examined, presumably because these media were already widespread before 1950.

In the present article, we assume that teachers not only respond to technological developments but have "agency"[23] themselves with regard to new technologies and technical tools. We also presuppose that there are different factions within the SLV that must first be brought to a common denominator. The teacher association had to mediate internally the different attitudes and interests of the teachers towards new teaching tools so that certain conflicts were not played out on the open stage and thus damaged the position of the association. Internal debates over professional issues need not threaten the unity of an association; rather, they can indicate the flexibility with which that association is able to create "group cohesion."[24] Thus, the individual teacher voices are to be located in the respective organ within the SLV and must also be interpreted in the context of an educational "interest group."[25]

Technolologies and technical aids are not neutral objects. They are always "cultur-

Film geht in die Schule: 100 Jahre Schweizer Schul- und Volkskino, ed. Anita Gertiser, Angela Hauser and John Wäfler (München: Kopaed, 2021), 106–21.

23 Mark Priestley, Gert J.J. Biesta and Sarah Robinson. "Teacher Agency: What Is It and Why Does It Matter?" in *Flip the System: Changing Education from the Bottom Up,* ed. R. Kneyber and J. Evers (London: Routledge, 2015).

24 Ronald L. Akers, "Framework for the Comparative Study of Group Cohesion: The Professions," *The Pacific Sociological Review* 13, no. 2 (1970), 73–85.

25 David Knoke, "Associations and Interest Groups," *Annual Review of Sociology* 12 (1986), 1–21; Terry M. Moe, "The Comparative Politics of Education: Teachers Unions and Education Systems Around the World," in *The Comparative Politics of Education: Teachers Unions and Education Systems around the World*, ed. Susanne Wiborg and Terry M. Moe (Cambridge: Cambridge University Press, 2016), 269–324.

ally constructed and interpreted."[26] This affects not only social discourses and individual perspectives, but the design of technological artifacts itself. It is important to consider for which social group the technological artifact acquires meaning in the first place and how it is interpreted by them. The social groups determine cultural construction of the particular technology under negotiation. This applies equally to interpretation, (re)design, diffusion, and implementation.[27]

The "relevant social group"[28] in this historical study are teachers who organised themselves in the main Swiss teachers' association and used the organisational infrastructure to influence the development and implementation of educational devices. Teachers, then, do not appear here as "end users,"[29] but as a group of actors situated between companies, government agencies, and schools. They made decisions about which technical solutions they considered appropriate for classroom use and which should not be taken into account. Teachers actively contributed to turning the ensemble of available technical devices into an educational whole. They helped shaping the design of the new teaching aids and constructed the artifacts as useful teaching aids. Teachers in this context were thus actively involved in turning technical tools into educational devices.

For this study, different sources have been analysed, such as annual reports, minutes, the teacher press and other educational journals. In a first step, the holdings of the Pestalozzianum Foundation were evaluated, which documents the historical pedagogical literature in Switzerland and contains archival materials of different Swiss educational stakeholders. The main aim here was to find out to what extent the individual stakeholders were involved with new educational media and what role audio-visual media played in this. In a second step, we examined the Swiss educational press, especially the teachers' journals. By means of a targeted keyword search on www.e-periodica.ch, articles and contributions relevant to the analysis were found. In this way, the publicly voiced positions of the educational stakeholders in Switzerland could be investigated and the broader context of debates on the benefits and disadvantages of audio-visual media for educational practice could be mapped. In a third step, the minutes and documents from the private archives of the Swiss Teachers' Association SLV were systematically analysed. This material discloses internal negotiations and highlights the developments within the association as well as internal conflicts or trouble spots. It therefore allowed conclusions to be drawn about the role of the SLV in shaping and interpreting new audio-visual media.

Background: the SLV and its bodies

The Swiss Teachers' Association SLV has become an important player in the Swiss ed-

26 Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14, no. 3 (1984), 399–441; here: 421.

27 Ibid; Hans K. Klein and Daniel Lee Kleinman, "The Social Construction of Technology: Structural Considerations," *Science, Technology, & Human Values* 27, no. 1 (2002), 28–52; Wiebe E Bijker, "How Is Technology Made?—That Is the Question!" *Cambridge Journal of Economics* 34, no. 1 (2010), 63–76.

28 Pinch and Bijker (1984), 414.

29 Nelly E. J.Oudshoorn and T. Pinch, "Introduction: How Users and Non-Users Matter," in *How Users Matter. The Co-Construction of Users and Technology* (Cambridge, Massachusetts: MIT Press, 2003), 1–25.

ucation system, since it is an interlocutor with the federal authorities. It was founded in 1849 by 225 teachers from all parts of Switzerland with the aim of promoting education, and unifying the Swiss school system. Due to the federal structure of Switzerland, many different teachers' associations already existed in the 26 cantons, but were poorly coordinated or not coordinated at all.[30] To enable and stimulate the exchange of experiences beyond cantonal and national borders, the SLV created its own association journal in 1856, which was later named *Schweizerische Lehrerzeitung* (SLZ). It contained reports on internal developments of the association and on the educational happenings of the various cantonal teachers' associations, and was intended to connect teachers of all levels and disciplines.[31]

At the beginning, the SLV was only a loose association, but over the course of time it steadily grew in importance through the expansion of its services and through increased cooperation at home and abroad. With the introduction of the Assembly of Delegates (*Delegiertenversammlung*), the creation of a Central Management Board (*Zentralvorstand*) and the formation of cantonal sections and the Governing Committee (*Leitender Ausschuss*) in 1894, the first four organs of the association were established. Other bodies, such as the Presidents' Conference (*Präsidentenkonferenz*), the Central Secretariat, the Audit Office (*Rechnungsprüfungsstelle*), Business Offices and Committees were added over time (see Figure 1). Furthermore, the SLV maintained various welfare institutions such as the Aid Fund or the Teachers' Orphan Foundation.

The SLV represents a complex organisation with a structured association policy and cantonal and inter-cantonal responsibilities. The association still does a great deal in professional and educational policy today and now bears the abbreviation "LCH" (*Dachverband Lehrerinnen und Lehrer Schweiz*). It is in active contact with federal departments and commissions. Due to its size and complexity, the SLV has an ambivalent role: on the one hand, it must represent the interests of teachers to the outside world; on the other hand, as a political actor in education policy matters, it is bound by certain guidelines and regulations. Institutional or financial dependencies could therefore quickly cause internal disputes.

With regard to educational devices, the special interest of this article lies with the Commission for Inter-cantonal School Issues (KOFISCH), which dealt with various teaching aids. Different study groups of this commission processed and collected, for example, school murals, published original prints for school wall decorations, examined teaching literature, or created history and geography picture atlases. An Apparatus Commission (APKO), which was established in 1950 and consisted of chemistry and physics teachers, was responsible for testing and assessing teaching aids and was concerned with the construction of apparatus for science classes.[32] In

30 For the history of teachers' associations in Switzerland, see Daniel V. Moser, *Es begann an einem sonnigen Samstag anno 1849: Festschrift 25 Jahre LCH: 140 Jahre Schweizerischer Lehrerverein SLV – 25 Jahre Dachverband Lehrerinnen und Lehrer Schweiz LCH* (Schweiz: Verlag LCH, 2014); K. Hohl, *Die Gründung des Schweizerischen Lehrervereins* (Zürich: Schweizerischer Lehrerverein, 1938); Peter Ziegler, *Zürcher Kantonaler Lehrerverein, 1893 bis 1993* (Zürich: Zürcher Kantonaler Lehrerverein, 1993).

31 "Die Festversammlungen des Schweiz. Lehrervereins," *Schweizerische Lehrerzeitung* 12, no. 43 (1867), 339–43; "Zum 50. Jahrgang. Ein Rückblick auf die Geschichte der Vereinsorgane des Schweiz. Lehrervereins," *Schweizerische Lehrerzeitung* 50, no. 1 (1905), 6–8.

32 Annual reports of the SLV, 1951–1989, books 352 and 333, private archives of the SLV/LCH PALCH), *Dachverband Lehrerinnen und Lehrer Schweiz LCH* (DLLCH).

cooperation with Swiss companies, the APKO wanted to create practical tools for the school. There has also even existed a working group for records and tape, which, however, was only active for about two years.

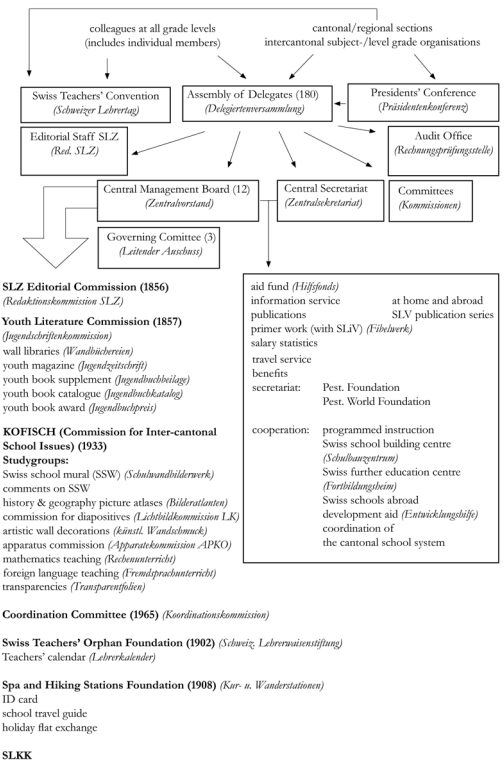

Figure 1: Organisational Chart of the SLV from 1970.
Source: Own illustration, based on the organisational chart in the minutes of the CMB, the Assembly of Delegates (AD) and the President's Conference (PC), book 365, PALCH, DLLCH.

During the research process, two study groups have attracted particular attention because they had been working with audio-visual teaching media for a long time and collaborated with different actors. These are the Commission for Diapositives (*Lichtbildkommission*), alternatively called study group for geography diapositives, and the study group for transparencies (*Studiengruppe für Transparentfolien*). We will highlight the activities and objectives of these two study groups and point out how and why teachers within the association became proactive in creating and promoting those specific audio-visual media. Through the minutes, we uncover the debates and endeavours that arose in the construction and implementation of the educational devices in question. At the same time, we shed light on the most important points of several debates on the topic of school television and educational film, as we have not only consulted the minutes of the two study groups, but also those of the Central Management Board, the Assembly of Delegates and the Presidents' Conference and those of the KOFISCH itself.

Educational markets and didactic autarky

One of the main arguments why the SLV should set up study groups was the increasing demand for certain audio-visual media on the market. Moreover, the SLV stated that Switzerland should be internationally competitive in terms of quality and independent from foreign producers. The concern of being flooded by products from other countries was a frequently heard argument in the Swiss debate of audio-visual educational media. Some form of didactic autarky was the goal. In September 1952, a teacher from KOFISCH approached the SLV Central Management Board and asked for a loan to set up a working group for the "school diapositive" (*Schullichtbild*). The sender of the letter stressed that the demands and requests for good photo material had increased, but that the situation in Switzerland was "shameful"[33]. Not only the country's own schools, but also foreign countries were increasingly asking for new diapositives, but there was a lack of specific Swiss material, the teacher complained. Setting up a study group would therefore help to become independent of foreign countries. In 1953, the new study group for geography diapositives, also called *Lichtbildkommission* (LK), consisting of half a dozen members, was founded and entrusted with assessing needs, archiving, collecting and exchanging visual material. When examining the colour slides already available in the mid-1950s, the LK found that surprisingly little school-appropriate material was on the market.[34] By publishing its own colour slides, the LK wanted to counteract the "mass feeding of inferior photographs."[35]

In the annual reports of the SLV, the work of the study group is portrayed very positively and the initiative of the SLV is praised in the highest terms. It says that the LK is making significant progress and that the success can be seen in the sales of the self-produced series called *Schweizer Schullichtbild* (SSL).[36] However, the production of diapositives did not go as smoothly; many had technical errors and were often delivered too late. The order intake of slides in 1958 was three times as high as their sale.[37] According to the SLV, one of the reasons for this was apparently the backward technology in the field of colour film and print.[38] The members of the association discussed that waiting for technology to catch up was inadvisable because of foreign competition.[39] Although the SLV did not actually aim to do any business of its own, but primarily to offer inexpensive picture lending for schools, it still wanted to beat the foreign countries that were eager to do business in Switzerland.[40]

The LK assumed that diapositives did not have the same significance for all school subjects and that they were used frequently in geography, history and natural history lessons. In 1960, a study group for biology diapositives was founded alongside the

33 Letter from F. Gribi to the Central Management Board (CMB) September 21 1952, box 49: study group for geography diapositives (SGGD), PALCH, DLLCH, 3.

34 Paper by Dr. H. Eggenberger at the third Swiss Conference for the School Diapositives (SCSD), annex to the minutes, September 19 1959, box 48: folder "geography diapositives" (GD), PALCH, DLLCH.

35 Minutes of the first SCSD, June 11 1955, box 48: folder GD, PALCH, DLLCH, 4.

36 Annual report of the SLV, 1958, book 333, PALCH, DLLCH.

37 Minutes of the meeting of the LK of the SLV, June 28 1958, box 49: folder SGGD, PALCH, DLLCH.

38 Minutes of the third SCSD, September 19 1959, box 48: folder GD, PALCH, DLLCH.

39 Ibid.

40 Minutes of the second SCSD, June 9 1956, box 48: folder GD, PALCH, DLLCH.

study group for geographical diapositives, but it soon ceased its activities and did not resume until 1965.[41] The study group had to struggle with financial difficulties, as the demand for biological diapositives was not as great as that for geographical ones.[42] However, for image reasons, the SLV wanted to continue the work of the study group in 1975 and continue to meet the needs of Swiss schools with its own series.[43] Yet, in 1980 the frustration was so high and no new members were found, which meant that the study group was dissolved. In 1984, the LK was also facing a turning point, as the diapositive was losing ground to video and computer science.[44] This example shows that the SLV perhaps got a bit cocky and was too eager to create its own series.

The increasing demand on the market and the international competition were, however, also the main arguments behind the foundation of the study group for transparencies. In 1968 the new overhead projector "Demolux 800" came onto the market, which the company *Lehrmittel AG Basel* advertised in the association journal SLZ.[45] At a meeting of the Central Management Board in March 1969, the president of KOFISCH suggested that transparencies be created for this projector. Specifically, he submitted a proposal to the Central Management Board to set up a study group that prepares transparency sheets for biology, physics, chemistry, history and geography.[46] This proposal was accepted and a short time later, a call for applications for the study group appeared in the SLZ. In September 1969, the study group for transparencies was officially constituted and consisted of half a dozen full-time teachers from different school levels from the area of Zurich.

One of the main goals of the new study group was to become independent of foreign production and to promote transparencies that met the specific needs of Swiss schools and teachers, because the supply of poor-quality transparencies was apparently huge at that time. The study group recognised as early as 1973 that federalism was delaying the spread of the overhead projector, since both schools with audio-visual media and the level of teacher training varied from place to place.[47] In some schools, the overhead projector was already in widespread use in 1971, but in others, the material requirements and financial resources were lacking. Moreover, about three dozen publishers were producing transparencies during this period, which is why the development of general purpose teaching aids had to be carefully planned, according to the study group.[48]

In summary, the SLV wanted to remedy the conditions in Switzerland to protect themselves from foreign production. Even though technical production was cum-

41 Request for dissolution of the study group for biology diapositives, adjunct to the meeting of the CMB, February 12 1983, box 48: folder "biology diapositives" (BD), PALCH, DLLCH.

42 Minutes of the meeting of the study group for biology diapositives, September 23 1961, box 48: folder BD, PALCH, DLLCH.

43 Request for dissolution of the study group for biology diapositives, adjunct to the meeting of the CMB, February 12 1983, box 48: folder BD, PALCH, DLLCH.

44 Minutes of the meeting of the LK of the SLV, January 21 1984, box 48: folder GD, PALCH, DLLCH.

45 Advertisement, *Schweizerische Lehrerzeitung* 113, no. 11 (1968), 350.

46 Minutes of the second meeting of the CMB, March 15 1969, book 364: minutes of the CMB, the AD and the PC, PALCH, DLLCH.

47 Letter from Max Chanson to the Georg Westermann publishing house and lectorate for audio-visual media for the attention of Mr D. Bode, December 19 1973, box 46: folder SGTF, PALCH, DLLCH.

48 Minutes of the meeting of the SGT, May 8 1972, box 46: folder SGTF, PALCH, DDLCH.

bersome and laborious, the SLV was keen to push its own series in order to keep up with international competition. The Commission for Diapositives (LK) was apparently one of the most successful study groups within the SLV with its own SSL series.

Anti-commercial orientation and association interests

In a discussion about school television in 1955, the Central Management Board expressed concerns that trade and industry use public schools for business purposes.[49] In the minutes of various institutional bodies of the SLV, it stood out that many teachers within the association criticised actors with purely commercial interests. This could then be directly linked to the critical attitude towards foreign products and suppliers. One teacher even spoke of "superficial American advertising crap"[50] in a teacher survey in 1970.

The SLV generally feared that audio-visual teaching aids were being touted by certain actors only to sell them and not because they had any real pedagogical value. Furthermore, the debates within the study groups we examined revealed that the SLV did not want to be influenced by mainly profit-oriented actors under any circumstances. The Central Management Board itself said that it neither wanted to represent an advertising agency, nor to make one-sided recommendations, but rather to depict modern teaching methods as realistically and truthfully as possible.[51] Before using new teaching methods in schools, the SLV was further committed to clarifying whether and how a possible introduction of new tools would be at all pedagogically, financially and organisationally responsible.[52] Discussions about the introduction of new audio-visual teaching media accordingly also revolved around cost-benefit issues. These findings indicate that the teachers within the SLV adopted a differentiated attitude and reflected cautiously on the use of audio-visual media in the classroom. First and foremost, they wanted to avoid any possible industrial or political manipulation and to adopt a neutral and unbiased stance.

At the same time, the SLV itself wanted to establish a good reputation as a purely educational interest group. One SLV member argued that the production of Swiss diapositives—especially for the teaching of Swiss geography—would not only benefit the schools, but would also be an honourable activity for the SLV, as it could achieve the name of a Swiss authority.[53]

In the beginning, the study group for geography diapositives was financed by the SLV, as the diapositive, unlike the educational film, was not subsidised. Eventually, however, the LK was dependent on additional financial support and had to contact Swiss companies. This search for a distribution partner led to internal conflicts

49 Meeting of the Central Management Board, June 18 1955, book 356: minutes of the CMB, the AD and the PC, PALCH, DDLLCH.

50 Evaluation of the Teacher Survey Sample Fair 1970, book 366: minutes of the CMB, the AD and the PC, PALCH, DLLCH, 2.

51 Minutes of the third meeting of the CMB, May 3 1969, book 364: minutes of the CMB, the AD and the PC, PALCH, DLLCH.

52 Short report by Marcel Rychner on the international conference in Berlin on the topic of "Programmed Instruction and Teaching Machines," supplement to agenda item 3, January 18 1964, book 359: minutes of the CMB, the AD and the PC, PALCH, DLLCH.

53 "*Das Schullichtbild*": Paper by A. Suter for the meeting of the *Lichtbildkommission* (LK) of 5 February 1955, January 23/30 1955, book 356: minutes of the CMB, the Assembly of Delegates (AD) and the President's Conference (PC), PALCH, DLLCH.

within the association. In 1954, the Governing Committee accused a member of the study group of gaining financial benefit from working with the *Lehrmittel AG Basel* and was concerned that this member was making propaganda for this company.[54] It was noticeable in the minutes that the SLV was very worried about its scientific integrity and reputation. Furthermore, the Governing Committee complained that the study group's work was progressing slowly and that no results were forthcoming.[55] Consequently, the LK was no longer entitled to sole or first editing: other institutions, for example, the Swiss Working Group for Educational Cinematography (SAFU), had usurped the study group, which greatly annoyed the Central Management Board. The question arose as to whether or not to enter into a contract with the SAFU. On the one hand, the SLV did not want to participate in any way in the corporate propaganda for the SAFU and help the company gain a monopoly position by signing a contract.[56] It also feared legal entanglements or companies with purely commercial interests. On the other hand, it seemed that the study group was primarily concerned that good, usable material that considered the specific needs of Swiss schools was produced. The SLV finally decided against reluctance and in favour of cooperation and began working with the SAFU in 1957. Together, they created diapositive series for history lessons.

The full-time teachers within the LK said themselves that creating the slide series was not a business but required a lot of idealism.[57] Not only did it demand good photographers, who ideally were also teachers, but also the right film, the right equipment, enough time and good weather.[58] In the association journal, the LK published lists of picture motifs it needed for its diapositives and called on the teaching community to cooperate. Initially, many colleagues were interested in collaborating; in 1959, 200 teachers sent in about 9,000 pictures.[59] However, only 300 of the pictures were assessed by the LK as being of sufficient quality and could thus be used. The study group had very high requirements and applied a strict standard in order to be better than manufacturers and traders. It does not seem surprising that the KOFISCH noticed a decline in the cooperation of fellow teachers in 1966. During the evaluation of the minutes, it became clear that the SLV attached great importance to its image and would have liked to have a kind of monopoly position in the field of school diapositives. Therefore, the study group was very strict in quality issues, which is, however, one of the reasons why the initial collaboration of teachers died down.

Quality was also very important to the study group for transparencies. It drew up standards and guidelines on transparencies in terms of their composition, format and image size, and thus established its own quality mark, the so-called "SLV-Norm" (see Figure 2). The members also coordinated and reviewed transparencies and accessories and made technical recommendations to Swiss producers.

54 Meeting of the CMB, June 19 1954, book 352: minutes of the CMB, the AD and the PC, PALCH DLLCH.

55 Meeting of the Commission for inter-cantonal school issues (KOFISCH), June 12 1954, box 54: minutes of the KOFISCH, PALCH, DLLCH.

56 Meeting of the CMB, September 25 1954, book 352: minutes of the CMB, the AD and the PC, PALCH, DLLCH.

57 Minutes of the second SCSD, June 9 1956, box 48: folder GD, PALCH, DLLCH.

58 Ibid.

59 Minutes of the third SCSD, September 19 1959, box 48: folder GD, PALCH, DLLCH.

Figure 2: Quality mark for school transparencies.
Source: Quality mark "SLV-Norm" for school transparencies, annex 10 to the original minutes of the meeting of the CMB, Max Chanson, November 30 1971, book 367: minutes of the CMB, the AD and the PD, PALCH, DLLCH, 1.

The full-time teachers in this study group wanted to promote Swiss publishers, to work as independently as possible and allegedly pioneered the field of overhead projection. In their meetings, they mainly discussed the question of the best possible use of the new teaching aid, both from a technical and a didactic point of view, as we will see in the following chapter.

Pedagogical and teacher-oriented concerns

The members of the two study groups felt that diapositives and transparencies, if used modestly, could facilitate everyday teaching. For this reason, they tried to promote the use of the teaching media in question in classrooms, always taking into account the specific needs of Swiss schools and teachers.

The LK, together with KOFISCH and the SLV, organised annual Swiss Conferences for the School Diapositives, which were also attended by representatives of the cantons and other interested organisations. Participants discussed how best to promote the use of the diapositive in class and wished that, at best, every second classroom should be set up in such a way that it could be converted to projection mode as quickly as possible.[60] They talked about which equipment, which films and which colour slides were suitable for use in schools. For example, a projector should be sturdily built, handy and easy to use. The participants felt that slide projectors were a practical tool that would make lesson preparation and blackboard work much easier for teachers. In addition, they believed that projection helped with the evaluation of texts, with translations, with historical documents, blackboards, statistics, mathematical tasks, or graphic representations.[61] Diapositives for teaching should not serve entertainment purposes though and should be chosen carefully, following the motto "less is more."[62] A member of the LK claimed that a verification centre, which could advise schools quickly and expediently on the acquisition of diapositives and projection equipment, had been desired for many years by wide circles of the teaching community.[63]

The overhead projector was also considered a good working tool by the study group for transparencies. It could activate and stimulate students, and also enable a new intensive cooperation and exchange of experiences among teachers.[64] In order

60 Minutes of the first SCSD, June 11 1955, box 48: folder GD, PALCH, DLLCH.

61 Minutes of the third SCSD, September 19 1959, box 48: folder GD, PALCH, DLLCH.

62 Minutes of the third SCSD, September 19 1959, box 48: folder GD, PALCH., DLLCH.

63 Creation of a central office for *Schullichtbilder* and *Stehlichtbilderstreifen*, letter from Dr. M. Simmen to the CMB, April 29 1952, box 49: SGGD, PALCH, DLLCH.

64 Discussion of the questions from the SGT, Th. Richner, January 14 1971, box 46: folder SGTF, PALCH, DLLCH.

to solve methodological and didactic problems with the transparencies, cooperation with teachers within the school levels concerned was essential. For the members, it was also important that the methodological freedom of teaching was not restricted by the new teaching aid.[65] For this reason, the work was oriented towards concrete educational practice and self-production of transparencies was encouraged. Various teachers' associations such as the Secondary Teachers' Conference and the Zurich Middle School Conference actively approached the study group and asked for advice on the production and formal design of transparency sheets.[66] As not all teachers were equally familiar with the new teaching material[67], the study group often negotiated in their meetings very concrete, technical questions such as which production or copying processes were most suitable for "average teachers"[68].

The study group for transparencies aimed to be a service for teachers and wanted to disseminate the new teaching material as easily and cheaply as possible. To this end, among other things, it published templates for transparencies in the SLZ which teachers were allowed to copy for their own use. The transparencies therefore had to be able to serve as a working tool for as many teachers as possible.[69] Together with the Zurich Commission for Teaching Aids (KOFU) and the Office for Image and Sound (BBT) of the School Board of the City of Zurich, the study group conducted a test in 1976 to find out which model of overhead projector was most suitable for schools.[70] Furthermore, in order to introduce the tools for designing worksheets and transparencies to teachers, the three organisations ran three special campaigns: they distributed free samples at the education fair "Didacta," sent out discounted introductory packages and spread around 300 promotional circulars to audio-visual offices, media officers and teacher training seminars.[71] A 1977 survey by the Research and Development Centre for Objectified Teaching and Learning (FEoLL)[72] found that the working projection for teachers was at the top of the list among all media (film, slide, school radio, school television).[73]

Regarding school television, the Assembly of Delegates recommended that the authorities and colleagues refrain from introducing it into schools. Even though the SLV did not deny the possibility of television to impart interesting and worthwhile knowledge, it mainly shared the view that many programmes would endanger the juvenile psyche because they overstrained the child's receptiveness and

65 Memo to the file of the SGT, Th. Richner, November 12 1969, box 46: folder SGTF, PALCH, DLLCH.

66 Minutes of the meeting of the SGT (*Normenausschuss*), June 19 1970, box 46: folder SGTF, PALCH, DLLCH.

67 Minutes of the meeting of the SGT, February 01 1978, box 46: folder SGTF, PALCH, DLLCH.

68 Ibid., 1.

69 Memo to the file of the study group for transparencies (SGT), Th. Richner, November 12 1969, box 46: folder "study group *TRSP-Folien*" (SGTF), PALCH, DLLCH.

70 News from the everyday life of the study group, Max Chanson, September 1976, box 46: folder SGTF, PALCH, DLLCH.

71 Letter from Max Chanson to SKAUM, request for contribution for the project "Introduction of the tools for the design of worksheet and transparency originals," September 20 1976, box 46: folder SGTF, PALCH, DLLCH.

72 *Forschungs- und Entwicklungszentrum für objektivierte Lehr- und Lernverfahren.*

73 Minutes of the meeting of the SGT, March 01 1977, box 46: folder SGTF, PALCH, DLLCH.

because the ability to concentrate would suffer in the long-term.[74] At a delegates' meeting in 1955, three different presentations were given on the question of television. The first speaker criticised the low cultural yield of television and the pedagogical clumsiness of many programmes. The second speaker saw many benefits of school television, such as improving access to education in remote areas, promoting a willingness to talk and exchange ideas among students, or even the possibility of intellectual or cultural higher advancement. The last speaker feared that students would go through mental changes and that education would be paralysed by television.[75]

The needs of the pupils should also be considered in the design of the diapositives and transparencies. There, too, it was important, for example, that the media were not overloaded with too much information, so that on the one hand, teachers still had enough leeway and on the other hand, the students were not confused.[76]

Furthermore, various members of the SLV emphasised that technical aids are of no use if teachers do not support them or do not know how to use them. This may also explain why the study groups placed so much emphasis on teachers themselves being involved in the production of their teaching materials. For this reason, it was important for the SLV that the new teaching tools were not simply imposed on teachers, but that teachers were taken seriously and considered as the stakeholder group most affected. After all, the SLV had always sought to protect the professional status of teachers since its foundation, under the principle that they were educators and not employees. Furthermore, the association policy considered reforms to be good only if training opportunities were improved, if the nature of the child was taken into account and if teachers, as experts in practice, had a say.[77] In the discussion of new instructional tools and educational media, these points were therefore raised repeatedly.

When the Directorate of Television wanted to conduct school television trials in 1958, for example, the Central Management Board considered doing something about it. However, the representatives of the Presidents' Conference realised as early as 1955 that they would not be able to stop school television, even if they wanted to. Despite everything, they agreed that television could also benefit the school, but only if teachers could influence programme design. In other words, when new teaching materials were introduced, it was obviously crucial that teachers were involved in questions of design and content. Stakeholders from outside the school who tried to impose something "from above" did not seem to be very popular at the SLV. However, the idea of actively involving teachers remained wishful thinking when it came to school television. Horlacher reports on a teacher survey at the end of the 1970s, which revealed that teachers saw many difficulties in school television, such as coordination with the syllabus and the timetable, organisational effort, or basic compatibility with the respective subject.[78]

74 Resolution of the Assembly of Delegates, September 24 1955, book 365: minutes of the CMB, the AD and the PC, PALCH, DLLCH.

75 Ordinary Delegates' Assembly, September 24 1955, book 356: minutes of the CMB, the AD and the PC, PALCH, DLLCH.

76 Minutes of the meeting 3/76 of the study group for transparencies, May 26 1976, box 46: folder SGTF, PALCH, DLLCH.

77 Explanations of the individual principles of the association's policy, W. Schott and F. v. Bidder, 1977, book 371: minutes of the CMB, the AD and the PC, PALCH, DLLCH.

78 Horlacher (2021).

As for the educational film, the SLV found that most teachers did not know exactly what effects and possibilities this media could have and felt that an introduction to this "least problematic form of film use"[79] was urgently needed. It seems understandable that schools and teachers did not purchase expensive media on their own initiative if they could not assess their impact on teaching. A teacher for media education and instructional technology wrote in the association journal that the technical aids had initially entered the classroom in an uncontrolled and unreflective manner, but that it had since been recognised that the pedagogical significance of these new forms of teaching and learning first had to be defined.[80] A didactics and methodology of audio-visual media could only be established through a theory-practice relationship, the teacher stated.

For Switzerland, Horlacher also states that the pedagogical approach to film and television should be understood in the context of a stronger lifeworld orientation of school and teaching. There were certain hopes and expectations associated with film education in schools in the 1960s, which were, however, largely disappointed, as the new medium did not have as much potential for improving society as was initially assumed.[81]

Between cooperation and autonomy

As the study groups provided non-profit services to the teaching community and did not pursue commercial interests, they have often faced financial difficulties. To survive, they were reliant on external support. Consequently, they frequently found themselves in a dilemma: on the one hand, they wanted to involve teachers in important decisions, but on the other hand, they had to work as efficiently as possible. Essentially, the study groups believed that well-thought-out production on a modest scale was better for the school than a hectic way of working.[82]

The publishing house *Kümmerly und Frey* (K+F) in Bern soon asked the SLV if it could cooperate with the newly established study group for transparencies within KOFISCH and in March 1970, the first draft contract was drawn up. K+F was contractually obliged to achieve the best possible level of quality, as the SLV valued good, precise and careful work.[83] The publisher was allowed to have a say in the choice of topic but should always act in the interest of the teachers. However, the study group did not want to be tied to just one publisher and wanted to promote cooperation between different publishers and authors.[84] It quickly found that its competences within the SLV were unclear. As a sub-group of KOFISCH, it did not know how far it could go with its initiatives and therefore proposed to split the study group. In this

79 Result of the survey of the SLV concerning film screenings for children and young people, June 17 1960, book 357: minutes of the CMB, the AD and the PC, PALCH, DLLCH, 6.

80 Ernst Ramseier, "av–bulletin," *Schweizerische Lehrerzeitung* 118, no. 52 (1973), 2173.

81 Ibid.

82 Minutes of the meeting of the SGT, March 14 1979, box 46: folder "SG *TRSP-Folien*," PALCH, DLLCH.

83 Regulations of the SGT, annex 18 to the original minutes of the meeting of the CMB, march 1970, book 365: minutes of the CMB, the AD and the PD, PALCH, DLLCH.; Draft contract concerning the publication of the official transparency work of the Swiss Teachers' Association, annex 19 to the original minutes of the meeting of the CMB, 1970, book 365: minutes of the CMB, the AD and the PD, PALCH, DLLCH.

84 Minutes of the fifth meeting of the SGT, December 10 1969, box 46: folder SGTF, PALCH, DLLCH.

way, it hoped for more freedom of action and more independent work.[85] Simultaneously, it was discussed in the KOFISCH meetings in 1970 that the commission could no longer oversee all the study groups at the same time and was working very slowly. Due to this sluggishness, teachers were not given enough weight because the results of the study groups always came a little too late.

At the beginning of 1973, KOFISCH was dissolved and the original study group for transparencies was split into two independent groups, the "SLV-Foil Committee" *(SLV-Folienausschuss*) and the "SLV-study group transparencies" *(SLV-Studiengruppe Transparentfolien*). The first worked closely with the K+F and monitored compliance with the level of quality according to the "SLV-Norm" guidelines.[86] The second dealt with issues of the use of overhead projectors and classroom transparencies in schools and documented experiences, passed on information, coordinated guidelines, or instructed and advised teachers.[87] From here on, only minutes of the SLV-study group transparencies were evaluated, as these gave more insight into the teachers' points of view.

In 1973, the Swiss Standards Association (SNV) found that other institutions, such as the Pestalozzianum (a famous further training centre for teachers in Zurich), were interested in the standardisation of overhead projectors and in cooperating with the study group.[88] Since self-supply with transparencies was not possible in the long-term, the study group was interested in teacher training centres, as they had the capacity to instruct prospective teachers in the sensible use of overhead projectors in a coordinated manner. The study group therefore wanted to strengthen the Pestalozzianum's reputation as a meeting place for teachers, expand the audio-visual centre (*AV-Zentralstelle*) there and, of course, gratefully accepted any financial support.[89] It had various ideas such as opening a foliothek or offering workshops and further training courses in the field of working projection. Despite a brief dispute with the Pestalozzianum and disagreements among members, the collaboration with the teacher centre was fruitful. On the premises of the Pestalozzianum, newly equipped with cables and loudspeakers, the study group held a first introductory course in working projection in 1977.[90]

However, the study group for transparencies apparently placed more emphasis on local and regional audio-visual agencies and saw bottom-up construction as an effective means of involving the teaching community.[91] To receive federal subsidies from the EDK, the study group was interested in joining the Swiss Commission for Audio-visual Teaching Aids and Media Education (SKAUM) in 1974. However, after the EDK had substantially cut subsidies in 1977, the study group described the

85 Ibid.

86 Draft: Regulations for the "SLV-Folienausschuss," annex 3 to the original minutes of the meeting of the CMB, March 07 1973, book 368: minutes of the CMB, the AD and the PD, PALCH, DLLCH.

87 SGT: Regulations, annex 3 to the original minutes of the meeting of the CMB, August 1974, book 369: minutes of the CMB, the AD and the PD, PALCH, DLLCH.

88 Letter from Max Chanson to the Technical Standards Committee Phototechnology "photonorm" in the German Standards Committee DNA for the attention of Mr Wolf Grau, August 31 1973, box 46: folder SGTF, PALCH, DLLCH.

89 Minutes of the meeting of the SGT, March 25 1975, box 46: folder SGTF, PALCH, DLLCH.

90 Minutes of the meeting of the SGT, March 01 1977, box 46: folder SGTF, PALCH, DLLCH.

91 Ibid.

EDK's subsidy practice as "restrictive"[92]. It attached great importance to the cooperation with other institutions and organisations, both for financial reasons and to avoid possible duplication of work. It always seemed to want to be perceived as an autonomous actor though.

Regarding the educational film, the SLV participated in various responsible bodies relatively early on. In 1952, it became a member of the *Filmbund* (a film union) and, in 1960, of the Working Community for Youth and Film (AJF)[93], with which it organised a joint working conference on the subject of "Education to Film"[94]. Together, they aimed to integrate film education into the lessons as harmoniously as possible. In contrast to school television, teachers were therefore included in the discussion about the educational film and accepted by other actors as an equal interest group, which naturally led to less resistance on their part.

Conclusion

This article has shown that teachers within Switzerland's largest national interest organisation for elementary and lower secondary teachers have been heavily involved in the construction of educational artifacts. The Swiss Teachers' Association SLV founded study groups that dealt with current teaching materials and, in some cases, even wanted to take on a pioneering role in the development of educational media.

In the second half of the twentieth century, Swiss teachers adopted new technical devices, giving them an educational spin. Through the creation of specialised study groups, the SLV showed other stakeholders that teachers can be actively involved in co-designing new teaching materials. It was keen to be at the forefront and to make its work visible to the outside world. Furthermore, its commitment to educational quality seemed to set the SLV apart from other stakeholders, as the quality of the new teaching materials was not only measured by the material component, but also by the content and didactic design, which aimed to consider the needs of both the pupils and the teachers.

With this commitment, the SLV wanted to strengthen its position as the representative of all elementary and lower secondary teachers. It endeavoured to conduct a thorough needs assessment before developing or promoting new instructional devices. The SLV's involvement, however, was accompanied by other, more defensive political motives. Criticism of audio-visual media was voiced when they did not seem to be adapted to teaching practice in Swiss schools, either because their introduction was driven by foreign producers or because the providers were only interested in commercial success.

In the practical work on new teaching aids, a number of further questions arose. For the study group for geography diapositives (LK), the backwardness of the technology was one of the biggest problems, as it led to technical errors and delivery delays. However, since the pressure from abroad seemed very great, the LK decided not to wait for the technology, but to continue working consistently. Another problem was the financial difficulties and the resulting dependence on companies, which

92 Minutes of the meeting of the SGT, December 13 1978, box 46: folder SGTF, PALCH, DLLCH, 1.

93 *Arbeitsgemeinschaft für Jugend und Film.*

94 Minutes of the second meeting of the CMB, February 25 1961, book 357: minutes of the CMB, the AD and the PC, PALCH, DLLCH.

caused internal conflicts and trust issues among the SLV members. The study group had to justify itself to the Central Management Board, which began to worry about the reputation of the SLV. The Board would have liked to see faster results and ultimately to be the first or sole processor of Swiss school diapositives. It feared loss of integrity, legal entanglements and propaganda abuse when working with other companies. In the course of the negotiations, it decided to cooperate with certain companies that pursued similar goals, with the argument that this would serve the schools and teachers in the best possible way.

Similar things can be said about the study group for transparencies. Unlike the LK, however, this study group was much more proactive. It provided a service to teachers by publishing transparency templates and encouraged teachers to create slides themselves. Moreover, it promoted further education courses on its own initiative and participated in campaigns or tests. The group focused on the possibilities of collaboration and directed its work towards teaching practice, with constant attention to methodological freedom.

The members of the study group for transparencies struggled less with technical difficulties than with the complexity of the SLV. Late results here were due to an unclear distribution of responsibilities within the association. Consequently, there was a fear that teachers' voices would be given less weight externally because of these delays. The organisational restructuring sought by the study group seemed to have facilitated certain internal association processes. However, financial difficulties were also a problem in this study group and the members had to constantly weigh up whether to involve their teacher colleagues in decision-making processes at the expense of efficiency.

In summary, the study group for transparencies made significant efforts to introduce the overhead projector and transparencies to teachers and to use them in the schools. It actively approached teachers and created opportunities for them to become familiar with the new teaching aids. For example, it created and published instructions and guidelines on how to make transparencies themselves or organised practice-oriented courses. The members tried to promote cooperation between teachers and support the methodological freedom of teaching, even if they gave advice on the creation and formal design of transparency templates.

The construction of educational artifacts was not a matter of airy debates. It involved technical and material issues and had great financial implications. It required collaboration with corporate actors, which was somewhat in tension with the association's anti-commercial impulse. With the help of this case study it could be shown that the organised teachers wanted to distance themselves from companies with commercial interests but were financially dependent on their help and had to engage in cooperation. Moreover, delivery problems and technical errors made work difficult and internal problems delayed the progress of production.

Members of the SLV produced and promoted audio-visual media and fought teaching aids they deemed inappropriate. They were active in making diapositives and transparencies and in disseminating them to the teaching community. However, the construction of audio-visual teaching aids was not only a question of good design and proper didactics. It was also a political matter.

Acknowledgements
We would like to thank the staff of the Dachverband Lehrerinnen und Lehrer Schweiz who gave us access to internal archive material.

Research sponsorship
This publication was supported by the Pestalozzianum Foundation in Zurich.

About the authors
Jeannine Erb is Research Assistant at the Centre of Education and Digital Transformation at the Zurich University of Teacher Education, Switzerland.
Email: jeannine.erb@hotmail.com.

Michael Geiss is Professor for Education Studies and Head of the Centre for Education and Digital Transformation at the Zurich University of Teacher Education, Switzerland. Email: michael.geiss@phzh.ch.

References

Archival Sources

Private Archives of the LCH (SLV), Zurich

Annual reports of the SLV, 1951–1989, books 352 and 333, private archives of the SLV/LCH (PALCH), *Dachverband Lehrerinnen und Lehrer Schweiz LCH* (DLLCH).

Biology diapositives (BD), 1961–1983, box 48: folder "*Biologielichtbilder,"* private archives of the LCH (PALCH), *Dachverband Lehrerinnen und Lehrer Schweiz LCH* (DLLCH).

Geography diapositives (GD), 1955–1989, box 48: folder *"Geographielichtbilder,"* Private archives of the LCH (PALCH), *Dachverband Lehrerinnen und Lehrer Schweiz LCH* (DLLCH).

Minutes of the Central Management Board (CMB), the Assembly of Delegates (AD) and the Presidents' Conference (PC), 1951–1980, books 352 and 356–374, private archives of the LCH (PALCH), *Dachverband Lehrerinnen und Lehrer Schweiz LCH* (DLLCH).

Minutes of the KOFISCH, 1933–1973, box 54, private archives of the LCH (PALCH), *Dachverband Lehrerinnen und Lehrer Schweiz LCH* (DLLCH).

Minutes of the study group for transparencies (SGT), 1969–1983, box 46: folder "study group *TRSP-Folien*" (SGTF), private archives of the LCH (PALCH), *Dachverband Lehrerinnen und Lehrer Schweiz LCH* (DLLCH).

Minutes of the study group for geography diapositives/of the *Lichtbildkommission* (LK), 1951–1976, box 49, private archives of the LCH (PALCH), *Dachverband Lehrerinnen und Lehrer Schweiz LCH* (DLLCH).

Literature

Akers, Ronald L. "Framework for the Comparative Study of Group Cohesion: The Professions." *The Pacific Sociological Review* 13, no. 2 (1970), 73–85.

Bosche, Anne, and Michael Geiss. "Das Sprachlabor: Steuerung und Sabotage eines Unterrichtsmittels im Kanton Zürich, 1963–1976." In *Deutsche Gesellschaft für Erziehungswissenschaft*, edited by C. Berg, 119–39. Jahrbuch für Historische Bildungsforschung. Bad Heilbrunn: Klinkhardt, 2011.

Bijker, Wiebe E. "How Is Technology Made?—That Is the Question!" *Cambridge Journal of Economics* 34, no. 1 (2010), 63–76.

Cain, Victoria. *Schools and Screens: a Watchful History*. The MIT Press Ser. Cambridge: MIT Press, 2021.

Caruso, Marcelo. *Geschichte der Bildung und Erziehung: Medienentwicklung und Medienwandel*. Paderborn: Ferdinand Schöningh, 2019.

Cuban, Larry. *Teachers and Machines: The Classroom Use of Technology since 1920*. New York, New York; Teachers College Press, 1986.

Cuban, Larry. *Oversold and Underused: Computers in the Classroom*. Cambridge, MA: Harvard University Press, 2001.

"Die Festversammlungen des Schweiz. Lehrervereins." *Schweizerische Lehrerzeitung* 12, no. 43 (1867), 339–43.

De Vincenti, Andrea, and Andreas Hoffmann-Ocon. "Technologische Lenkungsversuche." In *Ambivalenzen des Ökonomischen: Analysen zur „Neuen Steuerung" im Bildungssystem*, edited by Martin Heinrich and Barbara Kohlstock,

73–96. Educational Governance. Wiesbaden: Springer Fachmedien, 2016.
Deplazes, Daniel. "'Balance of Mind […] Seems More Necessary than the Promotion of Teaching Machines' – Technology in Swiss Schools in the 1960s." *IJHE Bildungsgeschichte* 10, no. 1 (2020), 42–63.
Doelker, Christian. *Didaktik und Methodik der audiovisuellen Mittel*. Zürich: Orell Füssli, 1971.
Felder, Dominique. *L'informytique ou l'invention des idées reçues sur l'ordinateur à l'école*. Cahiers du Service de la recherche sociologique No. 29. Genève: Service de la recherche sociologique, 1989.
Ferster, Bill. *Teaching Machines: Learning from the Intersection of Education and Technology*. Tech.Edu: A Hopkins Series on Education and Technology. Baltimore: Johns Hopkins University Press, 2014.
Good, Katie Day. "Making Do with Media: Teachers, Technology, and Tactics of Media Use in American Classrooms, 1919–1946." *Communication and Critical/ Cultural Studies* 13, no 1 (2016), 75–92.
Good, Katie Day. *Bring the World to the Child: Technologies of Global Citizenship in American Education*. Cambridge: The MIT Press, 2020.
Good, Katie Day. "Multimedia: How Educators Made Sense of New Media Multiplicity." In *Digital Roots*, edited by Gabriele Balbi, Nelson Ribeiro, Valérie Schafer, and Christian Schwarzenegger, 59–76. Berlin: De Gruyter, 2021.
Hof, Barbara. "Der Bildungstechnologe." In *Überschreitungslogiken und die Grenzen des Humanen: (Neuro-)Enhancement – Kybernetik – Transhumanismus*, edited by Sabrina Schenk and Martin Karcher, 27–51. Berlin: epub, 2018a.
Hof, Barbara. "From Harvard via Moscow to West Berlin: Educational Technology, Programmed Instruction and the Commercialisation of Learning after 1957." *History of Education* 47, no. 4 (2018b), 445–65.
Hohl, K. *Die Gründung des Schweizerischen Lehrervereins*. Schriften des Schweizerischen Lehrervereins Nr. 17. Zürich: Schweizerischer Lehrerverein, 1938.
Horlacher, Rebekka. "The Implementation of Programmed Learning in Switzerland." In *Trajectories in the Development of Modern School Systems: Between the National and the Global,* edited by Daniel Tröhler and Thomas Lenz, 113–27. New York: Routledge, 2021.
Horlacher, Rebekka. "Bringing Pedagogy in Line: Globalizing Nationally Programmed Instruction, New Math, Film and Media Education." In *World Yearbook of Education 2022*, edited by Daniel Tröhler, Nelli Piattoeva, and William F. Pinar, 87–102. London: Routledge.
Horlacher, Rebekka. "Wie Film und Fernsehen in die Schule kamen. Die 'audiovisuelle Zentralstelle' für die Schulen des Kantons Zürich und deren Weg zur 'Fachstelle für Medienpädagogik'." In *Der Film geht in die Schule: 100 Jahre Schweizer Schul- und Volkskino,* edited by A. Gertiser, A. Hauser and J. Wäfler, 120–135. München: Kopaed, 2021.
Hunziker, Hans W. *Audiovision im Unterricht: Handbuch der Lerntechnologie (1981/82)*. Zürich: Transmedia, 1981.
Jean-Richard, Elisabeth. "Die audio-visuelle Methode im Unterricht." *Schweizerische Lehrerinnen-Zeitung* 72, nos. 1–2 (1968), 15–17.

Kaufmann, Franz. "Sind wir oder werden wir begabt? / Die Wirksamkeit audiovisueller und konventioneller Fremdsprachmethoden." *Schweizer Schule* 58, no. 1 (1971), 14–18.

Klein, Hans K., and Daniel Lee Kleinman, "The Social Construction of Technology: Structural Considerations." *Science, Technology, & Human Values* 27, no. 1 (2002), 28–52.

Knoke, David. "Associations and Interest Groups." *Annual Review of Sociology* 12 (1986), 1–21.

Moe, Terry M. "The Comparative Politics of Education: Teachers Unions and Education Systems Around the World." In *The Comparative Politics of Education: Teachers Unions and Education Systems around the World*, edited by Susanne Wiborg and Terry M. Moe, 269–324. Cambridge Studies in the Comparative Politics of Education. Cambridge: Cambridge University Press, 2016.

Moser, Daniel V. *Es begann an einem sonnigen Samstag anno 1849: Festschrift 25 Jahre LCH: 140 Jahre Schweizerischer Lehrerverein SLV – 25 Jahre Dachverband Lehrerinnen und Lehrer Schweiz LCH*. Schweiz: Verlag LCH, 2014.

Moser, Heinz. "Überlegungen zum Lernen mit und über Medien im Zeitalter der Digitalisierung." *MedienPädagogik: Zeitschrift für Theorie und Praxis der Medienbildung*, Mai 2021, 709–32.

Oudshoorn, Nelly E. J., and Trevor Pinch, "Introduction: How Users and Non-Users Matter." In *How Users Matter: The Co-Construction of Users and Technology*, edited by Nelly Oudshoorn and Trevor Pinch, 1–25. Cambridge, Massachusetts: MIT Press, 2003.

Petrina, Stephen. "Getting a Purchase on 'The School of Tomorrow' and its Constituent Commodities: Histories and Historiographies of Technologies." *History of Education Quarterly* 42, no. 1 (2002), 75–111.

Petrina, Stephen. "Sidney Pressey and the Automation of Education, 1924-1934." *Technology and Culture* 45, no. 2 (2004), 305–30.

Pinch, Trevor J., and Wiebe E. Bijker, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." *Social Studies of Science* 14, no. 3 (1984), 399–441.

Priestley, Mark, Gert Biesta, and Sarah Robinson. "Teacher Agency: What Is It and Why Does It Matter?" In *Flip the System: Changing Education from the Ground Up*, edited by Jelmer Evers and René Kneyber, 134–48. London: Routledge, 2015.

Ramseier, Ernst. "av-bulletin." *Schweizerische Lehrerzeitung* 118, no. 52 (1973), 2173.

Rankin, Joy Lisi. *A People's History of Computing in the United States*. Cambridge, Massachusetts: Harvard University Press, 2018.

Rolandsson, Lennart. "Teacher Pioneers in the Introduction of Computing Technology in the Swedish Upper Secondary School." In *History of Nordic Computing 3*, edited by John Impagliazzo, Per Lundin, und Benkt Wangler, 159–67. IFIP Advances in Information and Communication Technology. Berlin, Heidelberg: Springer Berlin Heidelberg, 2011.

Runcis, Maija, and Bengt Sandin. *Neither Fish nor Fowl: Educational Broadcasting in Sweden 1930–2000*. Nordic Academic Press, 2011.

Ryf, Hans. "Basler Versuche mit audiovisuellem Französischunterricht/ Der audiovisuelle Unterricht und seine Kehrseite." *Schweizer Schule* 57, no. 2 (1970), 68–71.

Saettler, Paul. *The Evolution of American Educational Technology*. [Rev. ed.]. Englewood (Colo.): Libraries Unlimited, 1990.

Tyack, David, and William Tobin. "The 'Grammar' of Schooling: Why Has It Been So Hard to Change?" *American Educational Research Journal* 31, no. 3 (1994), 453–79.

Watters, Audrey. *Teaching Machines: The History of Personalized Learning*. Cambridge, Massachusetts: The MIT Press, 2021.

Ziegler, Peter. *Zürcher Kantonaler Lehrerverein, 1893 bis 1993*. Zürich: Zürcher Kantonaler Lehrerverein, 1993.

"Zum 50. Jahrgang. Ein Rückblick auf die Geschichte der Vereinsorgane des Schweiz. Lehrervereins." *Schweizerische Lehrerzeitung* 50, no. 1 (1905), 6–8.