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Abstract
The GInA-E Evaluation Tool ("*Gestaltung von Interaktonsgelegenheiten im Alltag-Evaluation*"; see Weltzien et al., 2017) represents the improved version of a video-based observational and reflective tool for research projects in everyday practice. This paper first presents an overview of the theoretical constructs and features (scale and item properties) of GInA-E's three scales. It then offers situational and personal correlatives of interaction quality in everyday teaching. It turns out that the tool can be employed for a wide range of settings, group situations, and age ranges, and that the caregivers' interaction-related skills vary widely. A slight positive impact on interaction quality was observed for interactions with younger children (up to four years of age) and so-called "*onlookers*"

Resumen
La herramienta de evaluación GInA-E ("*Gestaltung von Interaktonsgelegenheiten im Alltag-Evaluation*"; véase Weltzien et al., 2017) representa la versión mejorada de una herramienta de observación y reflexión usando vídeos para proyectos de investigación en la práctica cotidiana. Ese trabajo primero presenta una descripción de las construcciones teóricas y características (escala y propiedades de los items) de las tres escalas del GInA-E. Posteriormente ofrece correlatos personales y situacionales de la calidad de la interacción en la enseñanza diaria. Se comprobó que la herramienta puede ser usada en una amplia diversidad de ámbitos, situaciones en grupo y edades y, que las competencias de los cuidadores relacionadas con la interacción varían ampliamente. Se pudo observar un impacto ligeramente positivo en la calidad de la interacción con los niños más pequeños (hasta los cuatro años) y los llamados observadores ("*onlookers*")

Keywords
Everyday situations; Interaction quality; Observation tool; Video analysis

Palabras clave
Situaciones cotidianas; Calidad de interacción; Herramienta de observación; Análisis de vídeo

1. Theoretical background and state of the art

1.1. Interaction design in educational practice and as an object of research

Empirical studies in the field of caregiver-child interaction, along with studies of general structural and qualitative development and general or specific skill development, have been the focus of additional research in Germany for several years (overviews in Viernickel, 2015; Dorner & Fröhlich-Gildhoff, 2015; Weltzien et al., 2016). Current interaction studies go beyond earlier studies of bonding in nurseries and daycare centers (e.g. Ahnert, 2004; 2006). Increasing attention has also been given to microprocesses in everyday educational activities (e.g. responsivity; see Remsperger, 2011), and concepts of special forms of interaction, such as sustained shared thinking (Siraj-Blatchford, Sylva, Muttock, Gilden & Bell, 2002), joint attention (Tomasello, 2009), and scaffolding (Wood, Bruner & Ross, 1976), have been studied for their development-friendly impact on individual children or groups of children (König, 2009; Anders et al., 2012). Interaction quality and language training have also been the subject of empirical studies (e.g. Fried, 2013; Wirts, Wildgruber & Wertfein, 2016). First of all, various tools from the Anglo-American region have been employed to standardize the assessment of interaction quality, including the tools of the KES family in the NUBBEK study (Tietze, Schuster, Grenner & Rossbach, 2015), the ECERS-R (Sylva, Siraj-Blatchford & Taggart 2010), and the CLASS tools (CLASS-Pre School, see Hamre et al., 2013; CLASS-Toddler; La Paro, Hamre & Pianta 2012). Findings for the German-speaking regions can be found in studies by Kammermeyer, Roux & Stuck (2013), Suchodoletz, Fäsche, Gunzenhauser & Hamre (2014), Wildgruber, Wirts & Wertfein (2014), Wertfein, Wirts & Wildgruber (2015), Bäuerlein et al. (2016), and Wirts, Wildgruber & Wertfein (2016). Moreover, new video-based tools enabling a systematic, criteria-based analysis of interaction sequences have been developed and tested (e.g. König, 2009; Kucharz et al., 2014, Wadepohl, 2016).[1] It is in this context that the subject of the present paper, the video-based research and evaluation tool GInA-E (**G**estaltung von **In**teraktionsgelegenheiten im **A**lltag), should be situated. It was developed and tested as a criteria- and video-based observational and reflective tool during a three-year practical research project from 2011 to 2014 (Weltzien, 2013, 2014, 2016) and further developed for research and evaluation purposes in several extensive studies (Weltzien et al., 2017).

1.2. Demands on interaction-related skills of educational caregivers

Studies of interaction quality or the underlying tools for its observation focus on interaction-related skills of educational caregivers. According to the general skill model developed by Fröhlich-Gildhoff, Nentwig-Gesemann, and Pietsch (2011; 2014a), a distinction can be made between the dispositional basis of an action and the performative action itself in a specific situation. The disposition level consists of various stocks of knowledge (including theoretical and reflected experience), scope for potential action (including methodological and didactic knowledge and abilities), and social skills (including the ability to empathize and to adopt other perspectives). Specific interaction-related activity (performance) is also influenced by situational factors, such as the perception and analysis of specific situations, and by contextual factors. Fundamental educational orientations lie "*behind*" interaction behavior and should successively evolve into a professional attitude through differentiation of knowledge and abilities, reflected practical experience, and an examination of one's own life. These will in turn promote the skills needed for designing interactions and relationships (Fröhlich-Gildhoff, Weltzien, Kirstein, Pietsch & Rauh,2014b).

If we take interaction quality in general to be the ability to interpret a child's behavior with empathy, and to guide one's own behavior in a sensitive response, the comprehension abilities of educational caregivers toward children's behavior constitute essential skills. Should misunderstandings or disruptions arise ("*misfits*"), the appropriate response should be professionally justified reflection that permits "*interactive repair*" (see Schore, 2003, or Beebe et

[1] Video sequences have also been analyzed as hermeneutic reconstructive approaches to educational activities and behavioral guidelines (see Nentwig-Gesemann & Nicolai, 2016).

al., 2011, as well as Nentwig-Gesemann & Nicolai, 2016) and a meaningful congruent acknowledgment of independence and diversity.

Everyday educational activities must be viewed as a series of highly complex, challenging, and often barely intelligible interactive occurrences. One central educational task is to discover an (emotional) access to all children and to enter into a dialogue with them (Viernickel & Stenger, 2010). For this reason, it is not enough to view interaction quality as general process quality; rather, it must always be related to the specific design of specific situations with the children or groups of children concerned. Nevertheless, general contextual conditions, such as emotional atmosphere of the group (Ahnert, 2007), a culture of communicative dialogue (De Wolff & Van IJzendoorn, 1997), and caregiver sensitivity are also connected with well-being and relationship-building in groups of children (e.g. Vermeer & Van IJzendoorn, 2006; De Schipper, Riksen-Walraven & Geurts, 2008).

The (further) development of tools for assessing interaction quality will, it is felt, make it possible to find systematic connections between determining factors and performance, and thus to release potential for improving interaction quality. Using video-based observation methods, such everyday situations can be analyzed on a criteria-guided basis. This systematic engagement with the quality of interactions is not intended to standardize interaction opportunities and their professional design, but to further their professional development. Every interaction process is a unique, dynamic, reciprocal, and largely unpredictable occurrence embedded in a context and marked by the interaction behavior of those involved. In the final analysis, however, it emerges out of itself.

1.3. Child- and context-specific factors affecting the design and quality of interactions

From the standpoint of the children involved, the findings to date regarding possible factors affecting the quality of caregiver-child interactions have not been clear-cut. The results of the studies by Lindberg, Freund & Mann. (2016), for example, suggest that children's behavior, positive moods, attentiveness, and social interest are positively related to the sensitivity of their mothers. Similarly, studies in educational settings suggest that interactions are reciprocal, and thus that the participating children affect the course of the interaction (Remsperger, 2011). Once again, however, a role is played here by the skills of the adults, especially their comprehension abilities and their readiness to address them (Anders, 2012). Whether other child-related features, such as language skills, sex, or socio-cultural background, play a role in interaction quality has been examined empirically only in minor studies with ambiguous results (summary in Mackowiak, Wadepohl, Weltzien & Fröhlich-Gildhoff, 2016).

With regard to contextual factors, such as group size or caregiver-child relations, some findings suggest that smaller groups or lower caregiver-child relations usually have a more beneficial impact on well-being, caregiver-child bonding, and social behavior (Watamura, Donzella, Alwin & Gunnar, 2003; Vermeer & Van IJzendoorn, 2006). Viewed as a whole, however, there are no consistent findings to show that structural aspects may possibly affect interaction quality or the child's development (Viernickel & Fuchs-Rechlin, 2015). For instance, there are no findings as to whether systematic differences in interaction quality within a facility exist between different times and settings in the daily routine or between caregivers or groups on different days or particular phases (e.g. setting in. Nor has much been discovered with regard to the children involved (e.g. their age, state of development, or other child-related features such as language) and their behavior (Weltzien et al., 2017).

The following three questions will be discussed:

- What findings does the use of the video-based procedure for the assessment of interaction quality (GInA-E) provide in relation to different settings and group contexts?
- Are there any indications that child- and context-specific factors affect the interaction-related skills of caregivers or the observed interaction quality?

- Where do we find further potential applications or limitations of video-based assessment of interaction quality, and what implications does this have for research and practice?

First, the GInA-E tool will be introduced (scale and item properties). Then the results will be presented with regard to the above questions, which were specially posed for the present paper.

2. Methodology

The analyses presented here are based on a sample of N=137 video sequences created and evaluated with the aid of the GInA method (Weltzien et al., 2017). Scenes were chosen in which a caregiver can be seen with one or more children for a period of four to six minutes.[2] These scenes were videotaped during a normal day at a child-care center; all activities and routines were taken into account. The video material evaluated for this paper was created during several evaluation projects at the Center for Child and Adolescent Research. All in all, there exists a data collection of 350 video sequences from 42 facilities from which the sample was chosen at random.

3. GInA E: Presentation of scales and psychometric quality criteria

The GInA-E tool represents the improved version of its forerunner "*GInA – Gestaltung von Interaktionsgelegenheiten im Alltag*" (Weltzien, 2014).[3] GInA-E encompasses three subscales with a total of 22 items on a seven-point Likert scale from 1 (lowest degree) to 7 (highest degree). The three subscales are based on the following theoretical constructs (see Weltzien et al., 2017):

- Scale 1 (Design Relationship, 11 items) relates to features of enhanced willingness to communicate and meaningful interaction design on the part of the caregiver. This is expressed in a low threshold of perception, perspective adoption, and appropriate responsivity on the caregiver's part (Ainsworth, 1974; Remsperger, 2011). Principles of congruence, appreciation, and authenticity (Rogers, 1959/1991) are also key prerequisites for a meaningful willingness to communicate.

- Scale 2 (Stimulate Thought and Action, 7 items) relates to features suitable for supporting the child's development and learning processes in a positive way. In specific everyday interactions, various aspects of socio-emotional and socio-cognitive accompaniment and support of children can be taken into account. Here a major role is the caregiver's support of basic communication motives (sharing, sympathizing, helping; see Tomasello, 2011), promotion of self-concept, ability to empathize, and pro-social behavior (summarized in Bischof-Köhler, 2011), promotion of representation skills (Sodian, 2005), and knowledge of other people (perspective adoption; Theory of Mind, see Premack & Woodruff, 1978). This also concerns specific exploration support in the child's next stage of development (Wygotski, 1987) and tailored assistance in meeting demands and challenges (Ahnert, 2007).

- Scale 3 (Stimulate Speech and Language, 4 Items) relates to features capable of supporting linguistic and communicative skills in specific interaction opportunities. Here we take into account that, besides child-related prerequisites, linguistic surroundings are decisive in the acquisition of language. It is thus necessary to

[2] This is a cardinal condition for using the GInA-E tool. Until now it has been used for children from roughly 18 months to the onset of elementary school. A trial for after-school daycare and elementary school children is in preparation.

[3] The original two scales of the forerunner tool – Readiness to Communicate (7 items) and Design Interaction (10 items) (see Weltzien, 2014) now form Scale 1, Design Relationship, with a total of 11 items. Scale 3 of the forerunner tool (Activate Know-How, 11 items) has been divided into two scales: Stimulate Thought and Action (7 items) and Stimulate Speech and Language (4 items). See Weltzien et al., 2017.

establish a fit between the child's prerequisites and the external factors (summarized in Weinert & Grimm, 2012). Maximum progress in speech is most likely to be found within stimulating linguistic surroundings (Szagun, 2006).

In a confirmatory factor analysis (CFA) based on a sampling of 145 video sequences, the three-dimensional model proved superior to a one-dimensional model ("*general interaction quality*")[4] (detailed discussion in Weltzien et al., 2017). True, the three factors correlated very high (r = .90 - .93), but nested model comparisons using information criteria revealed that the three-factorial structure is tenable in view of the economy of the model. Given intensive training, the tool reveals a high inter-rater agreement of > .7 (single measure) and > .9 (averaged measure).

For this paper, N=137 sequences of the original 145 video sequences were included in the special evaluations; eight sequences were excluded because the structural features relevant to the special evaluations below could not be adequately observed (e.g. children's language skills). The scale and item features have a rating of good (see Table 1-3).

Table 1.
Scale 1: Design Relationship (11 Items, Cronbach α = .98)

Item	Item Total Correlation	Item Difficulty
1: Show attention	.91	.71
2: Be interested/engaged	.90	.71
3: Express appreciation	.89	.67
4: Exude calm	.74	.70
5: Listen attentively	.94	.69
6: Master disruptions	.87	.73
7: Express understanding	.92	.75
8: Strike balance between closeness and distance	.87	.73
9: Invite to participate	.85	.71
10: Draw attention	.84	.67
11: Be open-minded	.87	.67

Table 2.
Scale 2: Stimulate Thought and Action (7 Items, Cronbach α = .95)

Item	Item Total Correlation	Item Difficulty
12: Establish common attention spaces	. 78	.60
13: Strengthen memories	. 82	.57
14: Connect living environments	. 64	.44
15: Support creativity	. 86	.54
16: Recognize autonomy	. 85	.63
17: Fortify and encourage	. 83	.60
18: Stimulate research	. 87	.54

Table 3.
Scale 3: Stimulate Speech and Language (4 Items, Cronbach α = .96)

Item	Item Total Correlation	Item Difficulty
19: Promote participation and cooperation	. 88	0.63
20: Convey emotional language	. 88	0.60
21: Expand language	. 90	0.61
22: Stimulate communicative exchange	. 90	0.65

[4] Goodness of fit of the three-dimensional model (CMIN/df = 2.54, CFI = .931, TLI = .921) compared to a one-dimensional model (CMIN/df = 2.77, CFI = .866, TLI = .852).

4. Child- and context-related structural features

The video sequences were coded on the basis of child- and context-related structural features. In some cases, features were quantified (number of caregivers/children involved); in others, categories were formed (e.g. setting/location/activity). The participating children were also taken into account on the basis of external features and linguistic expression (age, sex, language skills). Another feature was introduced: so-called "*onlookers*" (yes/no). Here "*onlookers*" refers to children who take part in an interaction in one way or another (and can thus be seen in the video) without being actively involved as communication partners. For example, they may watch an interaction between caregiver and child(ren), come closer, join or sit next to them, and observe the activities. But they can equally join the group with ideas and requirements of their own (Weltzien, 2014, 2016; Weltzien et al., 2017) (see Table. 4).

Table 4.
Child- and Context-Related Structural Features (N=137)

Child-related features	Sex	Homogeneous/Primarily one sex/Balanced
	Age	Between 1 and approx. 6 years[5]
	Language skills	Good/Limited/Unintelligible
Context-related features	Group situation	Number of children directly participating in the interaction
	Setting	Type of activity mainly performed during the interaction, e.g. daily routines, play/exploration, table/game/reading/communication situation
	Location	Group space, function space, dressing area etc.
	Onlookers	yes/no

5. Results

5.1. Calculated Interaction quality: Descriptive analyses

Taken as a whole, the 137 evaluated interaction sequences revealed a quality from moderate to good. In Scale 1 (Design Relationship) the highest mean value was M=5.23 (SD=1.30). In Scales 2 and 3, the mean values were slightly lower, with M=4.37 (SD=1.52) and M=4.73 (SD=1.51), respectively. Particularly striking is the relatively broad distribution: minimum values (min=1) and maximum values (max=7) appeared in all three scales.

In some instances, there were significant differences relative to the structural features in the sequences concerned (see Table 5):

Table 5.
Interaction Quality by Structural Feature Category

		GInA E (Scales 1,2,3)				
	n		Min	Max	M (SD)	%
Setting (n=133)						
Daily routines	32	Scale 1	2.29	7.00	5.19 (1.27)	24.1
		Scale 2	1.14	7.00	4.19 (1.50)	
		Scale 3	1.75	7.00	4.81 (1.33)	
Play/exploration	64	Scale 1	1.13	7.00	5.30 (1.26)	48.1
		Scale 2	1.20	7.00	4.50 (1.46)	
		Scale 3	1.00	7.00	4.76 (1.56)	
Table/game/reading/communication situation	37	Scale 1	1.88	7.00	5.18 (1.43)	27.8
		Scale 2	1.43	7.00	4.37 (1.72)	
		Scale 3	1.25	7.00	4.70 (1.69)	
Location (n=137)						

Outside group space		Scale 1	1.13	7.00	4.99 (1.50)	
	53	Scale 2	1.14	7.00	4.15 (1.65)	38.7
		Scale 3	1.00	7.00	4.45 (1.65)	
Inside group space		Scale 1	2.47	7.00	5.38 (1.16)	
	84	Scale 2	1.57	7.00	4.51 (1.45)	61.3
		Scale 3	1.50	7.00	4.92 (1.42)	
Sex (n=135)						
Girls only		Scale 1	1.71	6.93	5.21 (1.43)	
	29	Scale 2	1.43	7.00	4.46 (1.66)	21.5
		Scale 3	1.00	7.00	4.60 (1.61)	
Boys only		Scale 1	2.88	7.00	5.36 (1.35)	
	23	Scale 2	2.29	7.00	4.75 (1.63)	17.0
		Scale 3	1.75	7.00	5.00 (1.75)	
Mainly girls		Scale 1	1.13	7.00	5.14 (1.46)	
	22	Scale 2	1.20	6.29	4.01 (1.36)	16.3
		Scale 3	1.25	7.00	4.78 (1.51)	
Mainly boys		Scale 1	2.31	7.00	5.09 (1.28)	
	35	Scale 2	1.14	7.00	4.10 (1.59)	25.9
		Scale 3	1.50	7.00	4.52 (1.58)	
Balanced		Scale 1	2.29	6.82	5.34 (1.13)	
	26	Scale 2	1.71	6.57	4.53 (1.36)	19.3
		Scale 3	2.50	7.00	4.87 (1.23)	
Age (n=131)						
Younger children (up to age 4)		Scale 1	2.29	7.00	5.49 (1.23)	
	68	Scale 2	1.14	7.00	4.60 (1.49)	49.6
		Scale 3	1.50	7.00	5.08 (1.48)	
Older children (age 4 and older)		Scale 1	1.13	7.00	4.97 (1.33)	
	69	Scale 2	1.20	7.00	4.15 (1.55)	50.4
		Scale 3	1.00	7.00	4.40 (1.51)	
Language skills (ability to understand the children) (n=129)						
Good with all children		Scale 1	1.13	6.93	4.98 (1.58)	
	19	Scale 2	1.20	7.00	4.09 (1.69)	14.7
		Scale 3	1.25	7.00	4.46 (1.46)	
Limited or poor in some children		Scale 1	1.71	7.00	5.34 (1.29)	
	69	Scale 2	1.43	7.00	4.53 (1.42)	53.5
		Scale 3	1.00	7.00	4.90 (1.53)	
Limited or poor in all children		Scale 1	2.29	7.00	5.23 (1.29	
	41	Scale 2	1.14	7.00	4.44 (1.61)	31.8
		Scale 3	1.50	7.00	4.73 (1.50)	
Onlookers (n=134)						
None		Scale 1	1.13	7.00	5.07 (1.30)	
	96	Scale 2	1.14	7.00	4.14 (1.50)	71.6
		Scale 3	1.00	7.00	4.52 (1.48)	
One or more		Scale 1	2.82	7.00	5.66 (1.21)	
	38	Scale 2	2.57	7.00	4.93 (1.46)	28.4
		Scale 3	2.00	7.00	5.40 (1.47)	

GInA E Scale with 1=minimum value and 7=maximum value
NB: % means proportion in videotaped scenes

5.2. Differences in interaction quality by structural feature category

Three structural features differed significantly in mean value in the variance analyses:

- The interaction quality in Scales 1 and 3 tends to be higher inside group spaces than outside group spaces ($p<0.1$). A small effect size is noticeable (partial $\eta^2 = 0.02$).
- When younger children are involved (up to age 4), the interaction quality is significantly higher in Scales 1 and 3 ($p<0.05$), with small to medium effect size (partial $\eta^2 = 0.04$)), and tends to be higher in Scale 2 ($p<0.1$), with small effect size (partial $\eta^2 = 0.02$).

- When onlookers are involved, the interaction quality is significantly higher in Scales 1, 2 and 3 ($p<0.05$; $p<0.01$, $p<0.01$), with small to medium effect size (partial η^2 =0.04 - 0.07).

The results of the variance analyses appear in Table 6:

Table 6.
Differences in Interaction Quality

Structural feature	Dependent variable	F	Significance	Partial η^2
No group space vs. group space	Scale 1	2.975	p < .10	.02
	Scale 2	1.798	n.s.	-
	Scale 3	3.123	p < .10	.02
Younger vs. older children	Scale 1	5.687	p < .05	.04
	Scale 2	3.039	p < 0.1	.02
	Scale 3	7.029	p < .01	.05
No onlookers vs. onlookers	Scale 1	5.804	p < .05	.04
	Scale 2	7.206	p < .01	.05
	Scale 3	9.514	p < .01	.07

For the other features, i.e. setting, sex, and language skills, no significant impact on interaction quality could be detected in the video sequences examined.

5.3. Overall prediction of interaction quality using child- and context-related features

The next step was to determine the extent to which child- and context-related predictors are suitable for predicting the interaction quality between caregiver and child(ren) in a given situation. Besides the above-mentioned categorical features, which are known to be relevant, another metric predictor was incorporated in the model: the caregiver-child relationship, i.e. how many children does the caregiver interact with at the same time? Here hierarchical regression was chosen as an analytic method in order to interpolate child-specific features (variable: age) and context-specific features (variables: location, onlookers, caregiver-child relationship) into the model separately as predictor blocks.

It turned out that all scales can be significantly explained with the common predictors, but the proportion of variance is not high (corrected R^2 between 7.7 and 9.9%). In every regression model, the context-related structural features yielded an additional explanatory power to the child-related structural feature "age." It also turned out, with regard to the newly added structural feature "*caregiver-child relationship*", that interaction quality tended to be inversely proportional to the number of children participating. But sometimes it transpired that not all the individually relevant structural features yielded a significant predictive value when the predictors were considered as a whole. The contributions of each predictor block and the individual regression models are shown in Tables 7 and 8:

Table 7.
Regression Model

Dependent Variable	Predictors	R^2	Change in F	Significance of overall model
Scale 1	Child-specific structural features	3.5%	5.387	p < .05
	Child- and context-specific structural features	8.5%	3.561	p < .01
Scale 2	Child-specific structural features	1.3%	2.813	p < .10
	Child- and context-specific structural features	7.7%	4.052	p < .01
Scale 3	Child-specific structural features	4.7%	7.509	p < .01
	Child- and context-specific structural features	9.9%	3.547	p < .01

Table 8.
Regression Model

Dependent Variable	Predictor	β	Significance
Scale 1	Age of children (younger/older)	-.162	p < .10
	Location (group space yes/no)	.098	n.s.
	Onlookers (yes/no)	.132	n.s.
	Caregiver-child relationship	-.177	p < .05
Scale 2	Age of children (younger/older)	-.106	n.s.
	Location (group space yes/no)	.067	n.s.
	Onlookers (yes/no)	.165	p < .10
	Caregiver-child relationship	-.190	p < .05
Scale 3	Age of children (younger/older)	-.187	p < .05
	Location (group space yes/no)	.083	n.s.
	Onlookers (yes/no)	.194	p < .05
	Caregiver-child relationship	-.119	n.s.

6. Conclusions

This paper presents initial findings regarding the use of the GInA-E method for video-based assessment of interaction quality at child-care facilities. It turns out that the interaction quality is moderate to good, but with different emphases in the three scales and with relatively broad distribution. A comparative study by structural features reveals some significant differences; the age of the participating children proves to be relevant to interaction quality (lower values for children over 4 compared to younger children), as does the presence of children participating indirectly (higher values with onlookers than without onlookers). The location (higher values inside group spaces than outside group spaces) and the caregiver-child relationship (the fewer the children, the higher the value) prove useful for predicting interaction quality. Other child- and context-related features have no bearing on interaction quality.

These analyses of 137 evaluated video sequences thus shed initial light on the questions posed at the beginning of this paper: the extent to which interaction quality can be assessed for a specific situation, and whether there are child- and/or context-specific factors that significantly affect interaction quality. Nonetheless, it should be clearly pointed out that 1) the results do not yield any large-scale effects, and 2) the small number of cases limits the applicability even when the results are statistically significant. Owing to the small number of cases, for example, it was impossible to carry out more sophisticated subgroup analyses (e.g. regarding the age-related settings), and the group formation sometimes had to remain approximate (group space yes/no; age of children). It would thus be sensible to use larger samples and additional contextual analyses in the assessment models. But despite these limitations, the results point to connections that will now discussed:

1. Interaction quality tends to be higher with younger children than with older children

This finding seems surprising at first, given that older children usually have expanded language skills and thus, in principle, greater potential for linguistic communication. One possible explanation for this rather unexpected result is that younger children may relate more closely to the relevant caregiver and demand more intensive interaction than older children, who may interact more intensively with children of their own age. This may tend to make caregivers adopt a passive role in groups of older children, and thus to bypass opportunities for active interaction design afforded by the GInA-E scales (e.g. Stimulate Thought and Action, or Stimulate Speech and Language), although such opportunities are clearly offered (this leads to correspondingly lower GInA-E values). Another possible explanation is the caregiver's interest in exploiting interaction opportunities to bond with younger children (this is especially noticeable in the higher values of Scale 1, Design Relationship). A third possibility is the hypothesis that the attention devoted to interaction opportunities, and thus the willingness to design them consciously and with professional reflection, increases with the complexity and demands of the situation.

Situations involving younger children with limited linguistic and communicative skills are complex and require special attention in order to understand the children's behavioral expression. The analyses suggest that the caregivers are correspondingly more engaged and their interaction-related skills (as indicated by the GInA-E scales) and performative actions are positively influenced. Consequently, in the overall picture of possible explanations, interactions are designed with greater attention and skill when the children demand it (closer relationship with the caregiver), the interest in bonding is especially high (younger children), and the group situation poses complex challenges. In other studies, too, the children's willingness to participate, commitment to interact, and well-being are frequently related to the interaction behavior of the caregiver (e.g. de Schipper, Riksen-Walraven & Geurts, 2006; Glüer, 2012; Skinner, Kindermann & Furrer, 2009; Laevers, Vandenbussche, Kog & Depondt, 1999).

2. Interaction quality tends to be higher in situations involving children (indirectly) as onlookers

This finding, too, seems surprising at first glance, for it would seem simpler to design interactions with children in the absence of the outside influences or even "*disruptions*" readily caused by "*onlookers*." All the more astonishing, then, that high interaction quality is achieved precisely in situations of greater complexity (i.e. with onlookers). Once again, various explanations are conceivable. High interaction quality is brought forth above all by appreciative, mutual, and committed engagement, situational appropriateness, and responsiveness to children's individual behavior and expression (key aspects of the GInA-E scale). The potentially higher interaction quality when "*onlookers*" are involved may thus indicate the caregiver's particular willingness to engage with the children – an especially high level of momentary attention that yields features for high interaction quality on all three scales of the GInA-E tool. But possibly children may be magically drawn to especially attractive moments as "*onlookers*" and can thus serve, in a manner of speaking, as indicators for the attractiveness of an interaction from the child's perspective. However, this need not be the case, since the group comparisons show that situations with "*onlookers*" are thoroughly capable of bringing forth low quality (Min=2.0, see Table 5).

3. Interaction quality tends to be higher inside group spaces than outside group spaces

According to our findings, interaction opportunities tend to be designed more consciously inside group spaces than outside group spaces. One possible reason may be that the sequences on which the rating is based consist of micro-transitions (recurring transitions in the daily routine, e.g. between different offerings; see Malenfant, 2006), which caregivers completely or partly overlook as interaction opportunities, and thus fail to design as such (e.g. dressing room conversations). In everyday educational practice, it indeed turns out that precisely such transitional situations tend to be distinguished by shortage of time (and space) and thus adversely affect the design of dialogues. But basically, all settings and locations are suitable for producing good interactions, as is proved by the maximum values in several sequences. They can even offer special niches for particularly interactive moments with children who are less communicative in normal settings (e.g. sitting in a circle) and thus less willing to join dialogues in group activities.

4. Interaction quality tends to be higher when fewer children are involved in the activity

As might be expected, the results show that the interaction-related skills of caregivers tend to unfold more advantageously with a smaller number of children than in large groups. For everyday educational practice, this means deliberately establishing or entering into communicative opportunities with smaller groups of children in the given spatial surroundings and designing them more intensively, e.g. by posing questions or enlarging the subject matter. That said, the results also suggest that exclusive situations are no guarantee for high interaction quality, and that successful interactions do not arise "*automatically*" from a particular setting. After all, the ratings also show minimum values in one-on-one and one-on-two situations with min=1.00 (see Table 5).

Proceeding from the preliminary evidence of the findings, several larger conclusions can be drawn for educational practice. First, complex situations in everyday teaching provide good opportunities for interaction and may even produce higher interaction quality than allegedly simpler routines. Above all, the necessary attention and openness toward children directly and indirectly involved in the activities can help interaction-related skills to come into play in the observed performance. It goes without saying that challenges in everyday activities need not necessarily lead to successful interactions, given the caregivers' ability or attempts to comprehend them, nor to the sensitive interactive creation of a proper fit (e.g. "*interactive repair*"; see Schore, 2003). This raises the question of motivational factors in everyday teaching activities, allowing systematic (self-) observation, (self-)reflection, and the above-mentioned openness, to be created afresh over and over again even in complex everyday reality. To this end, video-based observational and reflective procedures developed for professional practice can be highly beneficial in further developing interaction-related skills as well as team and quality enhancement with regard to dialogue- and participation-friendly structures and processes.

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